

<210> 1773
 <211> 614
 <212> PRT
 <213> Homo sapiens

<400> 1773
 Met Gly Ala Leu Arg Pro Thr Leu Leu Pro Pro Ser Leu Pro Leu Leu
 1 5 10 15
 Leu Leu Leu Met Leu Gly Met Gly Cys Trp Ala Arg Glu Val Leu Val
 20 25 30
 Pro Glu Gly Pro Leu Tyr Arg Val Ala Gly Thr Ala Val Ser Ile Ser
 35 40 45
 Cys Asn Val Thr Gly Tyr Glu Gly Pro Ala Gln Gln Asn Phe Glu Trp
 50 55 60
 Phe Leu Tyr Arg Pro Glu Ala Pro Asp Thr Ala Leu Gly Ile Val Ser
 65 70 75 80
 Thr Lys Asp Thr Gln Phe Ser Tyr Ala Val Phe Lys Ser Arg Val Val
 85 90 95
 Ala Gly Glu Val Gln Val Gln Arg Leu Gln Gly Asp Ala Val Val Leu
 100 105 110
 Lys Ile Ala Arg Leu Gln Ala Gln Asp Ala Gly Ile Tyr Glu Cys His
 115 120 125
 Thr Pro Ser Thr Asp Thr Arg Tyr Leu Gly Ser Tyr Ser Gly Lys Val
 130 135 140
 Glu Leu Arg Val Leu Pro Asp Val Leu Gln Val Ser Ala Ala Pro Pro
 145 150 155 160
 Gly Pro Arg Gly Arg Gln Ala Pro Thr Ser Pro Pro Arg Met Thr Val
 165 170 175
 His Glu Gly Gln Glu Leu Ala Leu Gly Cys Leu Ala Arg Thr Ser Thr
 180 185 190
 Gln Lys His Thr His Leu Ala Val Ser Phe Gly Arg Ser Val Pro Glu
 195 200 205
 Ala Pro Val Gly Arg Ser Thr Leu Gln Glu Val Val Gly Ile Arg Ser
 210 215 220
 Asp Leu Ala Val Glu Ala Gly Ala Pro Tyr Ala Glu Arg Leu Ala Ala
 225 230 235 240
 Gly Glu Leu Arg Leu Gly Lys Glu Gly Thr Asp Arg Tyr Arg Met Val
 245 250 255
 Val Gly Gly Ala Gln Ala Gly Asp Ala Gly Thr Tyr His Cys Thr Ala
 260 265 270
 Ala Glu Trp Ile Gln Asp Pro Asp Gly Ser Trp Ala Gln Ile Ala Glu
 275 280 285
 Lys Arg Ala Val Leu Ala His Val Asp Val Gln Thr Leu Ser Ser Gln
 290 295 300
 Leu Ala Val Thr Val Gly Pro Gly Glu Arg Arg Ile Gly Pro Gly Glu
 305 310 315 320
 Pro Leu Glu Leu Leu Cys Asn Val Ser Gly Ala Leu Pro Pro Ala Gly
 325 330 335
 Arg His Ala Ala Tyr Ser Val Gly Trp Glu Met Ala Pro Ala Gly Ala
 340 345 350
 Pro Gly Pro Gly Arg Leu Val Ala Gln Leu Asp Thr Glu Gly Val Gly
 355 360 365
 Ser Leu Gly Pro Gly Tyr Glu Gly Arg His Ile Ala Met Glu Lys Val

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      370      375      380
Ala Ser Arg Thr Tyr Arg Leu Arg Leu Glu Ala Ala Arg Pro Gly Asp
385      390      395      400
Ala Gly Thr Tyr Arg Cys Leu Ala Lys Ala Tyr Val Arg Gly Ser Gly
      405      410      415
Thr Arg Leu Arg Glu Ala Ala Ser Ala Arg Ser Arg Pro Leu Pro Val
      420      425      430
His Val Arg Glu Glu Gly Val Val Leu Glu Ala Val Ala Trp Leu Ala
      435      440      445
Gly Gly Thr Val Tyr Arg Gly Glu Thr Ala Ser Leu Leu Cys Asn Ile
      450      455      460
Ser Val Arg Gly Gly Pro Gly Leu Arg Leu Ala Ala Ser Trp Trp
465      470      475      480
Val Glu Arg Pro Glu Asp Gly Glu Leu Ser Val Pro Ala Gln Leu
      485      490      495
Val Gly Gly Val Gly Gln Asp Gly Val Ala Glu Leu Gly Val Arg Pro
      500      505      510
Gly Gly Gly Pro Val Ser Val Glu Leu Val Gly Pro Arg Ser His Arg
      515      520      525
Leu Arg Leu His Ser Leu Gly Pro Glu Asp Glu Gly Val Tyr His Cys
      530      535      540
Ala Pro Ser Ala Trp Val Gln His Ala Asp Tyr Ser Trp Tyr Gln Ala
545      550      555      560
Gly Ser Ala Arg Ser Gly Pro Val Thr Val Tyr Pro Tyr Met His Ala
      565      570      575
Leu Asp Thr Leu Phe Val Pro Leu Leu Val Gly Thr Gly Val Ala Leu
      580      585      590
Val Thr Gly Ala Thr Val Leu Gly Thr Ile Thr Cys Cys Phe Met Lys
      595      600      605
Arg Leu Arg Lys Arg *
      610      613

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<210> 1774
<211> 156
<212> PRT
<213> Homo sapiens

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<400> 1774
Met Glu Ala Leu Thr Leu Trp Leu Leu Pro Trp Ile Cys Gln Cys Val
1      5      10      15
Ser Val Arg Ala Asp Ser Ile Ile His Ile Gly Ala Ile Phe Glu Glu
      20      25      30
Asn Ala Ala Lys Asp Asp Arg Val Phe Gln Leu Ala Val Ser Asp Leu
      35      40      45
Ser Leu Asn Asp Asp Ile Leu Gln Ser Glu Lys Ile Thr Tyr Ser Ile
      50      55      60
Lys Val Ile Glu Ala Asn Asn Pro Phe Gln Ala Val Gln Glu Ala Cys
      65      70      75      80
Asp Leu Met Thr Gln Gly Ile Leu Ala Leu Val Thr Ser Thr Gly Cys
      85      90      95
Ala Ser Ala Asn Ala Leu Gln Ser Leu Thr Asp Ala Met His Ile Pro
      100      105      110
His Leu Phe Val Gln Arg Asn Pro Gly Gly Ser Pro Arg Thr Ala Cys
      115      120      125
His Leu Asn Pro Ser Pro Asp Gly Glu Ala Tyr Thr Leu Ala Ser Arg
      130      135      140

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Pro Pro Val Arg Leu Asn Asp Val Met Leu Arg Leu
 145 150 155 156

<210> 1775
 <211> 896
 <212> PRT
 <213> Homo sapiens

<400> 1775
 Met Gln Lys Ala Ser Val Leu Leu Phe Leu Ala Trp Val Cys Phe Leu
 1 5 10 15
 Phe Tyr Ala Gly Ile Ala Leu Phe Thr Ser Gly Phe Leu Leu Thr Arg
 20 25 30
 Leu Glu Leu Thr Asn His Ser Ser Cys Gln Glu Pro Pro Gly Pro Gly
 35 40 45
 Ser Leu Pro Trp Gly Ser Gln Gly Lys Pro Gly Ala Cys Trp Met Ala
 50 55 60
 Ser Arg Phe Ser Arg Val Val Leu Val Leu Ile Asp Ala Leu Arg Phe
 65 70 75 80
 Asp Phe Ala Gln Pro Gln His Ser His Val Pro Arg Glu Pro Pro Val
 85 90 95
 Ser Leu Pro Phe Leu Gly Lys Leu Ser Ser Leu Gln Arg Ile Leu Glu
 100 105 110
 Ile Gln Pro His His Ala Arg Leu Tyr Arg Ser Gln Val Asp Pro Pro
 115 120 125
 Thr Thr Thr Met Gln Arg Leu Lys Ala Leu Thr Thr Gly Ser Leu Pro
 130 135 140
 Thr Phe Ile Asp Ala Gly Ser Asn Phe Ala Ser His Ala Ile Val Glu
 145 150 155 160
 Asp Asn Leu Ile Lys Gln Leu Thr Ser Ala Gly Arg Arg Val Val Phe
 165 170 175
 Met Gly Asp Asp Thr Trp Lys Asp Leu Phe Pro Gly Ala Phe Ser Lys
 180 185 190
 Ala Phe Phe Phe Pro Ser Phe Asn Val Arg Asp Leu Asp Thr Val Asp
 195 200 205
 Asn Gly Ile Leu Glu His Leu Tyr Pro Thr Met Asp Ser Gly Glu Trp
 210 215 220
 Asp Val Leu Ile Ala His Phe Leu Gly Val Asp His Cys Gly His Lys
 225 230 235 240
 His Gly Pro His His Pro Glu Met Ala Lys Lys Leu Ser Gln Met Asp
 245 250 255
 Gln Val Ile Gln Gly Leu Val Glu Arg Leu Glu Asn Asp Thr Leu Leu
 260 265 270
 Val Val Ala Gly Asp His Gly Met Thr Thr Asn Gly Asp His Gly Gly
 275 280 285
 Asp Ser Glu Leu Glu Val Ser Ala Ala Leu Phe Leu Tyr Ser Pro Thr
 290 295 300
 Ala Val Phe Pro Ser Thr Pro Pro Glu Glu Pro Glu Val Ile Pro Gln
 305 310 315 320
 Val Ser Leu Val Pro Thr Leu Ala Leu Leu Leu Gly Leu Pro Ile Pro
 325 330 335
 Phe Gly Asn Ile Gly Glu Val Met Ala Glu Leu Phe Ser Gly Gly Glu
 340 345 350
 Asp Ser Gln Pro His Ser Ser Ala Leu Ala Gln Ala Ser Ala Leu His
 355 360 365
 Leu Asn Ala Gln Gln Val Ser Arg Phe Phe His Thr Tyr Ser Ala Ala

370	375	380
Thr Gln Asp Leu Gln Ala Lys Glu Leu His Gln Leu Gln Asn Leu Phe		
385	390	395
Ser Lys Ala Ser Ala Asp Tyr Gln Trp Leu Leu Gln Ser Pro Lys Gly		400
	405	410
Ala Glu Ala Thr Leu Pro Thr Val Ile Ala Glu Leu Gln Gln Phe Leu		415
	420	425
Arg Gly Ala Arg Ala Met Cys Ile Glu Ser Trp Ala Arg Phe Ser Leu		430
	435	440
Val Arg Met Ala Gly Gly Thr Ala Leu Leu Ala Ala Ser Cys Phe Ile		445
	450	455
Cys Leu Leu Ala Ser Gln Trp Ala Ile Ser Pro Gly Phe Pro Phe Cys		460
465	470	475
Pro Leu Leu Leu Thr Pro Val Ala Trp Gly Leu Val Gly Ala Ile Ala		480
	485	490
Tyr Ala Gly Leu Leu Gly Thr Ile Glu Leu Lys Leu Asp Leu Val Leu		495
	500	505
Leu Gly Ala Val Ala Ala Val Ser Ser Phe Leu Pro Phe Leu Trp Lys		510
	515	520
Ala Trp Ala Gly Trp Gly Ser Lys Arg Pro Leu Ala Thr Leu Phe Pro		525
	530	535
Ile Pro Gly Pro Val Leu Leu Leu Leu Leu Phe Arg Leu Ala Val Phe		540
545	550	555
Phe Ser Asp Ser Phe Val Val Ala Glu Ala Arg Ala Thr Pro Phe Leu		560
	565	570
Leu Gly Ser Phe Ile Leu Leu Leu Val Val Gln Leu His Trp Glu Gly		575
	580	585
Gln Leu Leu Pro Pro Lys Leu Leu Thr Met Pro Arg Leu Gly Thr Ser		590
	595	600
Ala Thr Thr Asn Pro Pro Arg His Asn Gly Ala Tyr Ala Leu Arg Leu		605
	610	615
Gly Ile Gly Leu Leu Leu Cys Thr Arg Leu Ala Gly Leu Phe His Arg		620
625	630	635
Cys Pro Glu Glu Thr Pro Val Cys His Ser Ser Pro Trp Leu Ser Pro		640
	645	650
Leu Ala Ser Met Val Gly Gly Arg Ala Lys Asn Leu Trp Tyr Gly Ala		655
	660	665
Cys Val Ala Ala Leu Val Ala Leu Leu Ala Ala Val Arg Leu Trp Leu		670
	675	680
Arg Arg Tyr Gly Asn Leu Lys Ser Pro Glu Pro Pro Met Leu Phe Val		685
	690	695
Arg Trp Gly Leu Pro Leu Met Ala Leu Gly Thr Ala Ala Tyr Trp Ala		700
705	710	715
Leu Ala Ser Gly Ala Asp Glu Ala Pro Pro Arg Leu Arg Val Leu Val		720
	725	730
Ser Gly Ala Ser Met Val Leu Pro Arg Ala Val Ala Gly Leu Ala Ala		735
	740	745
Ser Gly Leu Ala Leu Leu Leu Trp Lys Pro Val Thr Val Leu Val Lys		750
	755	760
Ala Gly Ala Gly Ala Pro Arg Thr Arg Thr Val Leu Thr Pro Phe Ser		765
	770	775
Gly Pro Pro Thr Ser Gln Ala Asp Leu Asp Tyr Val Val Pro Gln Ile		780
785	790	795
Tyr Arg His Met Gln Glu Glu Phe Arg Gly Arg Leu Glu Arg Thr Lys		800
	805	810
Ser Gln Gly Pro Leu Thr Val Ala Ala Tyr Gln Leu Gly Ser Val Tyr		815
	820	825
Ser Ala Ala Met Val Thr Ala Leu Thr Leu Leu Ala Phe Pro Leu Leu		830
	835	840
		845

Leu Leu His Ala Glu Arg Ile Ser Leu Val Phe Leu Leu Leu Phe Leu
 850 855 860
 Gln Ser Phe Leu Leu Leu His Leu Leu Ala Ala Gly Ile Pro Val Thr
 865 870 875 880
 Thr Pro Gly Lys Tyr Leu Ser Ser Asp Ser Leu Lys Asp Asn Ser Asp
 885 890 895 896

<210> 1776
 <211> 178
 <212> PRT
 <213> Homo sapiens

<400> 1776
 Met Trp Ala Cys Trp Cys Val Leu Gly Thr Pro Gly Val Ala Met Val
 1 5 10 15
 Leu Leu His Thr Thr Ile Ser Phe Cys Val Ala Gln Phe Arg Ser Gln
 20 25 30
 Leu Leu Thr Trp Leu Cys Ser Leu Leu Leu Leu Ser Thr Leu Arg Leu
 35 40 45
 Gln Gly Val Glu Glu Val Lys Arg Arg Trp Tyr Lys Thr Glu Asn Glu
 50 55 60
 Tyr Tyr Leu Leu Gln Phe Thr Leu Thr Val Arg Cys Leu Tyr Tyr Thr
 65 70 75 80
 Ser Phe Ser Leu Glu Leu Cys Trp Gln Gln Leu Pro Ala Ala Ser Thr
 85 90 95
 Ser Tyr Ser Phe Pro Trp Met Leu Ala Tyr Val Phe Tyr Tyr Pro Val
 100 105 110
 Leu His Asn Gly Pro Ile Leu Ser Phe Ser Glu Phe Ile Lys Gln Arg
 115 120 125
 Ser Gln Trp Ser Asn Arg Glu Phe Gly Met Glu Val Glu Ser Lys Gly
 130 135 140
 Pro Gly Ala His Pro Pro Gly Phe Glu Ser Leu Leu Cys Phe Gly Leu
 145 150 155 160
 Arg Val Leu Ala Glu Leu Leu Thr Leu Leu Met Pro Gln Ser Ser Tyr
 165 170 175
 Gln *
 177

<210> 1777
 <211> 59
 <212> PRT
 <213> Homo sapiens

<400> 1777
 Met Pro Thr Tyr Trp Leu Ala Asn Leu Arg Pro Gly Leu Gln Pro Phe
 1 5 10 15
 Leu Leu His Phe Leu Leu Glu Trp Leu Ala Val Phe Cys Cys Lys Ile
 20 25 30
 Met Val Leu Ala Ala Ala Gly Leu Leu Pro Thr Leu His Met Ala Ser
 35 40 45
 Phe Phe Ser Asn Ala Leu Tyr Asn Cys Phe Tyr

50

55

59

<210> 1778
 <211> 137
 <212> PRT
 <213> Homo sapiens

<400> 1778
 Met Val Ala Pro Gly Leu Val Leu Gly Leu Val Leu Pro Leu Ile Leu
 1 5 10 15
 Trp Ala Asp Arg Ser Ala Gly Ile Gly Phe Arg Phe Ala Ser Tyr Ile
 20 25 30
 Asn Asn Asp Met Val Leu Gln Lys Glu Pro Ala Gly Ala Val Ile Trp
 35 40 45
 Gly Phe Gly Thr Pro Gly Ala Thr Val Thr Val Thr Leu Arg Gln Gly
 50 55 60
 Gln Glu Thr Ile Met Lys Lys Val Thr Ser Val Lys Ala His Ser Asp
 65 70 75 80
 Thr Trp Met Val Val Leu Asp Pro Met Lys Pro Gly Gly Pro Phe Glu
 85 90 95
 Val Met Ala Gln Gln Thr Leu Glu Lys Ile Asn Phe Thr Leu Arg Val
 100 105 110
 His Asp Val Leu Phe Gly Asp Val Trp Leu Cys Ser Gly Gln Ser Asn
 115 120 125
 Met Gln Met Thr Val Leu Gln Ile Phe
 130 135 137

<210> 1779
 <211> 65
 <212> PRT
 <213> Homo sapiens

<400> 1779
 Met Lys Val Phe Phe Leu Asp Glu Ser Trp Pro Gln Trp Arg Phe Ala
 1 5 10 15
 Ala Gly Leu Leu Ala Leu Ser Phe Gly Gly Pro Ala Trp Lys Phe Leu
 20 25 30
 Ser Val Gln Arg Val Ile Pro Trp Leu Trp Ala Ala Lys Glu Lys Pro
 35 40 45
 Leu Gly Pro Leu Ala Thr Pro Pro Arg Leu Asn Pro Lys Val Gly Val
 50 55 60 64

*

<210> 1780
 <211> 53
 <212> PRT
 <213> Homo sapiens

<400> 1780

Met Phe His Cys Tyr Trp Phe Arg Cys Leu Ser Pro Gln Thr Leu Leu
 1 5 10 15
 Cys Lys Cys Phe Ser Lys Gly Arg Thr Asp Trp Asn Cys Gly Ser Ala
 20 25 30
 Arg Ser His Ser Phe Gln Ser His Phe Phe Ser Ala Ala Leu Ser Ser
 35 40 45
 Cys Gly Thr Leu *
 50 52

<210> 1781
 <211> 109
 <212> PRT
 <213> Homo sapiens

<400> 1781
 Met Met His Asn Ile Ile Val Lys Glu Leu Ile Val Thr Phe Phe Leu
 1 5 10 15
 Gly Ile Thr Val Val Gln Met Leu Ile Ser Val Thr Gly Leu Lys Gly
 20 25 30
 Val Glu Ala Gln Asn Gly Ser Glu Ser Glu Val Phe Val Gly Lys Tyr
 35 40 45
 Glu Thr Leu Val Phe Tyr Trp Pro Ser Leu Leu Cys Leu Ala Phe Leu
 50 55 60
 Leu Gly Arg Phe Leu His Met Phe Val Lys Ala Leu Arg Val His Leu
 65 70 75 80
 Gly Trp Glu Leu Gln Val Glu Glu Lys Ser Val Leu Glu Val His Gln
 85 90 95
 Gly Glu His Val Lys Gln Leu Leu Arg Ile Pro Arg Pro
 100 105 109

<210> 1782
 <211> 58
 <212> PRT
 <213> Homo sapiens

<400> 1782
 Met Ala Ser Thr Trp Ser Leu Glu Arg Val Gly Thr Cys Leu Pro Cys
 1 5 10 15
 Gly Phe Gly Thr Trp Gln Ser Thr Ala Arg Trp Pro Ser Cys Arg Ser
 20 25 30
 Thr Ser Met Val Trp Leu Val Trp Pro Ser Leu Leu Ala Pro Ser Thr
 35 40 45
 Leu Ser Leu Trp Ala Thr Ser Met Thr *
 50 55 57

<210> 1783
 <211> 102
 <212> PRT
 <213> Homo sapiens

<400> 1783
 Met Leu Ile Pro His Gln Leu Pro Leu Cys Ser Pro Trp Leu Val Gln
 1 5 10 15
 Ala Met Leu Thr Ile Glu Val Pro Trp Leu Leu Gly Leu Ala His Tyr
 20 25 30
 Arg Leu Gly Trp His Ala Leu Glu Gly Ile Phe Trp Trp Gly Ala Ser
 35 40 45
 Val Phe His Ala Leu Gln Ala Met Leu Val Arg Lys Trp Pro Leu Gly
 50 55 60
 Leu Val Glu Phe Thr Gly Thr Cys Gly Ile Leu Val Glu Val Ile Gly
 65 70 75 80
 Leu Trp Trp Gly Glu Gly Ser Thr Gly Asn Arg Trp Met Gly Leu Asn
 85 90 95
 Ser Thr Gly Gly Gln *
 100 101

<210> 1784
 <211> 243
 <212> PRT
 <213> Homo sapiens

<400> 1784
 Met Gly Glu Ala Ser Pro Pro Ala Pro Ala Arg Arg His Leu Leu Val
 1 5 10 15
 Leu Leu Leu Leu Leu Ser Thr Leu Val Ile Pro Ser Ala Ala Ala Pro
 20 25 30
 Ile His Asp Ala Asp Ala Gln Glu Ser Ser Leu Gly Leu Thr Gly Leu
 35 40 45
 Gln Ser Leu Leu Gln Gly Phe Ser Arg Leu Phe Leu Lys Gly Asn Leu
 50 55 60
 Leu Arg Gly Ile Asp Ser Leu Phe Ser Ala Pro Met Asp Phe Arg Gly
 65 70 75 80
 Leu Pro Gly Asn Tyr His Lys Glu Glu Asn Gln Glu His Gln Leu Gly
 85 90 95
 Asn Asn Thr Leu Ser Ser His Leu Gln Ile Asp Lys Met Thr Asp Asn
 100 105 110
 Lys Thr Gly Glu Val Leu Ile Ser Glu Asn Val Val Ala Ser Ile Gln
 115 120 125
 Pro Ala Glu Gly Ser Phe Glu Gly Asp Leu Lys Val Pro Arg Met Glu
 130 135 140
 Glu Lys Glu Ala Leu Val Pro Ile Gln Lys Ala Thr Asp Ser Phe His
 145 150 155 160
 Thr Glu Leu His Pro Arg Val Ala Phe Trp Ile Ile Lys Leu Pro Arg
 165 170 175
 Arg Arg Ser His Gln Asp Ala Leu Glu Gly Gly His Trp Leu Ser Glu
 180 185 190
 Lys Arg His Arg Leu Gln Ala Ile Arg Asp Gly Leu Arg Lys Gly Thr
 195 200 205
 His Lys Asp Val Leu Glu Glu Gly Thr Glu Ser Ser Ser His Ser Arg
 210 215 220
 Leu Ser Pro Arg Lys Thr His Leu Leu Tyr Ile Leu Arg Pro Ser Arg
 225 230 235 240
 Gln Leu *
 242

<210> 1785
 <211> 158
 <212> PRT
 <213> Homo sapiens

<400> 1785
 Met Lys Ala Leu Leu Leu Leu Val Leu Pro Trp Leu Ser Pro Ala Asn
 1 5 10 15
 Tyr Ile Asp Asn Val Gly Asn Leu His Phe Leu Tyr Ser Glu Leu Cys
 20 25 30
 Lys Gly Ala Ser His Tyr Gly Leu Thr Lys Asp Arg Lys Arg Arg Ser
 35 40 45
 Gln Asp Gly Cys Pro Asp Gly Cys Ala Ser Leu Thr Ala Thr Ala Pro
 50 55 60
 Ser Pro Glu Val Ser Ala Ala Thr Ile Ser Leu Met Thr Asp Glu
 65 70 75 80
 Pro Gly Leu Asp Asn Pro Ala Tyr Val Ser Ser Ala Glu Asp Gly Gln
 85 90 95
 Pro Ala Ile Ser Pro Val Asp Ser Gly Arg Ser Asn Arg Thr Arg Ala
 100 105 110
 Arg Pro Phe Glu Arg Ser Thr Ile Ile Ser Arg Ser Phe Lys Lys Ile
 115 120 125
 Asn Arg Ala Leu Ser Val Leu Arg Arg Thr Lys Ser Gly Ser Ala Val
 130 135 140
 Ala Asn His Ala Asp Gln Gly Arg Glu Asn Ser Glu Asn Thr
 145 150 155 158

<210> 1786
 <211> 142
 <212> PRT
 <213> Homo sapiens

<400> 1786
 Met Glu Ser Ala Val Arg Val Glu Ser Gly Val Leu Val Gly Val Val
 1 5 10 15
 Cys Leu Leu Leu Ala Cys Pro Ala Thr Ala Thr Gly Pro Glu Val Ala
 20 25 30
 Gln Pro Glu Val Asp Thr Thr Leu Gly Arg Val Arg Gly Arg Gln Val
 35 40 45
 Gly Val Lys Gly Thr Asp Arg Leu Val Asn Val Phe Leu Gly Ile Pro
 50 55 60
 Phe Ala Gln Pro Pro Leu Gly Pro Asp Arg Phe Ser Ala Pro His Pro
 65 70 75 80
 Ala Gln Pro Trp Glu Gly Val Arg Asp Ala Ser Thr Ala Pro Pro Met
 85 90 95
 Cys Leu Gln Asp Val Glu Ser Met Asn Ser Ser Arg Phe Val Leu Asn
 100 105 110
 Gly Lys Gln Gln Ile Phe Ser Val Ser Glu Asp Cys Leu Val Leu Asn
 115 120 125
 Val Tyr Ser Pro Ala Glu Val Pro Ala Gly Ser Gly Arg Pro
 130 135 140 142

<210> 1787
 <211> 120
 <212> PRT
 <213> Homo sapiens

 <221> misc_feature
 <222> (1)...(120)
 <223> Xaa = any amino acid or nothing

<400> 1787
 Met Ala Leu Thr Gly Tyr Ser Trp Leu Leu Leu Ser Ala Thr Phe Leu
 1 5 10 15
 Asn Val Gly Ala Glu Ile Ser Ile Thr Leu Glu Pro Ala Gln Pro Ser
 20 25 30
 Glu Gly Asp Asn Val Thr Leu Val Val His Gly Leu Ser Gly Glu Leu
 35 40 45
 Leu Ala Tyr Ser Trp Tyr Ala Gly Pro Thr Leu Ser Val Ser Tyr Leu
 50 55 60
 Val Ala Ser Tyr Ile Val Ser Thr Gly Asp Glu Thr Pro Gly Pro Ala
 65 70 75 80
 His Thr Xaa Arg Glu Ala Val Arg Pro Asp Gly Ser Leu Asp Ile Gln
 85 90 95
 Gly Ile Leu Pro Arg His Ser Ser Thr Tyr Ile Leu Gln Thr Phe Asn
 100 105 110
 Arg Gln Leu Gln Thr Glu Val Gly
 115 120

<210> 1788
 <211> 68
 <212> PRT
 <213> Homo sapiens

<400> 1788
 Met Ser Trp Leu Ala Asn Gly Val Cys Leu Tyr Glu Tyr Leu Phe Phe
 1 5 10 15
 Arg Cys Gly Phe Leu Ile Leu Gln Pro Cys Ser Phe Asp Ala Ser Leu
 20 25 30
 Thr Asp Glu Glu Ser Arg Lys Asn Trp Glu Glu Phe Gly Asn Pro Asp
 35 40 45
 Gly Pro Gln Gly Val Val Asn Asp Asp Phe Lys Ile Leu Ala Ile Trp
 50 55 60
 Tyr Ile Leu *
 65 67

<210> 1789
 <211> 133
 <212> PRT
 <213> Homo sapiens

<400> 1789
 Met Ala Val Val Ile Arg Leu Leu Gly Leu Pro Phe Ile Ala Gly Pro
 1 5 10 15

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Val Asp Ile Arg His Phe Phe Thr Gly Leu Thr Ile Pro Asp Gly Gly
      20      25      30
Val His Ile Ile Gly Gly Glu Ile Gly Glu Ala Phe Ile Ile Phe Ala
      35      40      45
Thr Asp Glu Asp Ala Arg Arg Ala Ile Ser Arg Ser Gly Gly Phe Ile
      50      55      60
Lys Asp Ser Ser Val Glu Leu Phe Leu Ser Ser Lys Ala Glu Met Gln
      65      70      75      80
Lys Thr Ile Glu Met Lys Arg Thr Asp Arg Val Gly Arg Gly Arg Pro
      85      90      95
Gly Ser Gly Thr Ser Gly Val Asp Ser Leu Ser Asn Phe Ile Glu Ser
      100      105      110
Val Lys Glu Glu Ala Ser Asn Ser Gly Tyr Gly Ser Ser Ile Asn Gln
      115      120      125
Asp Ala Gly Phe His
      130      133

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<210> 1790
<211> 82
<212> PRT
<213> Homo sapiens

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<400> 1790
Met Ala Ala Trp Gly Phe Cys Phe Ala Val Ser Ala Leu Val Val Ala
  1      5      10      15
Cys Glu Phe Thr Arg Leu His Gly Cys Leu Arg Leu Ser Trp Gly Asn
      20      25      30
Phe Thr Ala Ala Phe Ala Met Leu Ala Thr Leu Leu Cys Ala Thr Ala
      35      40      45
Ala Val Leu Tyr Pro Leu Tyr Phe Ala Arg Arg Glu Cys Pro Pro Glu
      50      55      60
Pro Ala Gly Cys Ala Ala Arg Asp Phe Arg Leu Ala Ala Ser Val Phe
      65      70      75      80
Ala Gly
      82

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<210> 1791
<211> 50
<212> PRT
<213> Homo sapiens

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<400> 1791
Met His Ala Ser Glu Gly Leu Pro Ala Leu Pro Leu Leu Ala Leu Val
  1      5      10      15
Ser His Ser His Ser Cys Pro Pro Leu Pro Leu Gln Pro His His Leu
      20      25      30
Pro Ala Ile Leu Phe Phe Leu Val Gly His Gln Leu Met Lys Cys Ile
      35      40      45
Arg *
      49

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<210> 1792
 <211> 166
 <212> PRT
 <213> Homo sapiens

<221> misc_feature
 <222> (1)...(166)
 <223> Xaa = any amino acid or nothing

<400> 1792
 Met Leu Leu Trp Leu Leu Leu Ile Leu Thr Pro Gly Arg Glu Gln
 1 5 10 15
 Ser Gly Val Ala Pro Lys Ala Val Leu Leu Asp Pro Pro Trp Ser
 20 25 30
 Thr Ala Phe Lys Gly Glu Lys Val Ala Leu Ile Cys Ser Ser Ile Ser
 35 40 45
 His Ser Leu Ala Gln Gly Asp Thr Tyr Trp Tyr His Asp Glu Lys Leu
 50 55 60
 Leu Lys Ile Lys His Asp Lys Ile Gln Ile Thr Glu Pro Gly Asn Tyr
 65 70 75 80
 Gln Cys Lys Thr Arg Gly Ser Ser Leu Ser Asp Ala Val His Val Glu
 85 90 95
 Phe Ser Pro Asp Trp Leu Ile Leu Gln Ala Leu His Pro Val Phe Glu
 100 105 110
 Gly Asp Asn Val Ile Leu Arg Cys Gln Gly Lys Asp Asn Lys Asn Thr
 115 120 125
 His His Lys Val Tyr Tyr Lys Asp Gly Lys Gln Xaa Ser Asn Ser Tyr
 130 135 140
 Asn Leu Glu Lys Asn Thr Val Asp Ser Val Ser Arg Asp Asn Ser Pro
 145 150 155 160
 Tyr Tyr Cys Ala Gly *
 165

<210> 1793
 <211> 146
 <212> PRT
 <213> Homo sapiens

<400> 1793
 Met Ala Thr Ala Ala Gln Gly Pro Leu Ser Leu Leu Trp Gly Trp Leu
 1 5 10 15
 Trp Ser Glu Arg Phe Trp Leu Pro Glu Asn Val Ser Trp Ala Asp Leu
 20 25 30
 Glu Gly Pro Ala Asp Gly Tyr Gly Tyr Pro Arg Gly Arg His Ile Leu
 35 40 45
 Ser Val Phe Pro Leu Ala Ala Gly Ile Phe Phe Val Arg Leu Leu Phe
 50 55 60
 Glu Arg Phe Ile Ala Lys Pro Cys Ala Leu Arg Ile Gly Ile Glu Asp
 65 70 75 80
 Ser Gly Pro Tyr Gln Ala Gln Pro Asn Ala Ile Leu Glu Lys Val Phe
 85 90 95
 Ile Ser Ile Thr Lys Tyr Pro Asp Lys Lys Arg Leu Glu Gly Leu Ser
 100 105 110
 Lys Gln Leu Asp Trp Asn Val Arg Lys Ile Gln Cys Trp Phe Arg His
 115 120 125

Arg Arg Asn Gln Asp Lys Pro Pro Thr Leu Thr Lys Phe Cys Glu Ser
 130 135 140
 Met *
 145

<210> 1794
 <211> 151
 <212> PRT
 <213> Homo sapiens

<400> 1794
 Met Glu Arg Arg Arg Leu Leu Gly Gly Met Ala Leu Leu Leu Leu Gln
 1 5 10 15
 Ala Leu Pro Ser Pro Leu Ser Ala Arg Ala Glu Pro Pro Gln Asp Lys
 20 25 30
 Glu Ala Cys Val Gly Thr Asn Asn Gln Ser Tyr Ile Cys Asp Thr Gly
 35 40 45
 His Cys Cys Gly Gln Ser Gln Cys Cys Asn Tyr Tyr Tyr Glu Leu Trp
 50 55 60
 Trp Phe Trp Leu Val Trp Thr Ile Ile Ile Ile Leu Ser Cys Cys Cys
 65 70 75 80
 Val Cys His His Arg Arg Ala Lys His Arg Leu Gln Ala Gln Gln Arg
 85 90 95
 Gln His Glu Ile Asn Leu Ile Ala Tyr Arg Glu Ala His Asn Tyr Ser
 100 105 110
 Ala Leu Pro Phe Tyr Phe Arg Phe Leu Pro Asn Tyr Leu Leu Pro Pro
 115 120 125
 Tyr Glu Glu Val Val Asn Arg Pro Pro Thr Pro Pro Pro Pro Tyr Ser
 130 135 140
 Ala Phe Gln Leu Gln Gln Gln
 145 150 151

<210> 1795
 <211> 177
 <212> PRT
 <213> Homo sapiens

<400> 1795
 Met Ala Ala Leu Ala Ala Ala Lys Lys Val Trp Ser Ala Arg Arg
 1 5 10 15
 Leu Leu Val Leu Leu Phe Thr Pro Leu Ala Leu Leu Pro Val Val Phe
 20 25 30
 Ala Leu Pro Pro Lys Glu Gly Arg Cys Leu Phe Val Ile Leu Leu Met
 35 40 45
 Ala Val Tyr Trp Cys Thr Glu Ala Leu Pro Leu Ser Val Thr Ala Leu
 50 55 60
 Leu Pro Ile Val Leu Phe Pro Phe Met Gly Ile Leu Pro Ser Asn Lys
 65 70 75 80
 Val Cys Pro Gln Tyr Phe Leu Asp Thr Asn Phe Leu Phe Leu Ser Gly
 85 90 95
 Leu Ile Met Ala Ser Ala Ile Glu Glu Trp Asn Leu His Arg Arg Ile
 100 105 110
 Ala Leu Lys Ile Leu Met Leu Val Gly Val Gln Pro Ala Arg Leu Ile

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      115      120      125
Leu Gly Met Met Val Thr Thr Ser Phe Leu Ser Met Trp Leu Ser Asn
      130      135      140
Thr Ala Ser Thr Ala Met Met Leu Pro Ile Ala Asn Ala Ile Leu Lys
145      150      155      160
Ser Leu Phe Gly Gln Lys Glu Val Arg Lys Asp Pro Gln Pro Gly Glu
      165      170      175 176

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<210> 1796
<211> 98
<212> PRT
<213> Homo sapiens

<221> misc_feature
<222> (1)...(98)
<223> Xaa = any amino acid or nothing

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<400> 1796
Met His Pro Leu Pro Gly Tyr Trp Ser Cys Tyr Cys Leu Leu Leu Leu
 1      5      10      15
Phe Ser Leu Gly Val Gln Gly Ser Leu Gly Ala Pro Ser Ala Ala Pro
      20      25      30
Glu Gln Val His Leu Ser Tyr Pro Gly Glu Pro Gly Ser Met Thr Val
      35      40      45
Thr Trp Thr Thr Trp Val Pro Thr Arg Ser Glu Val Gln Phe Gly Leu
      50      55      60
Gln Pro Ser Gly Pro Leu Pro Leu Arg Ala Gln Gly Thr Phe Val Pro
      65      70      75      80
Phe Val Asp Xaa Gly Ile Leu Arg Arg Lys Leu Tyr Ile His Arg Val
      85      90      95
Thr Leu
 98

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<210> 1797
<211> 96
<212> PRT
<213> Homo sapiens

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<400> 1797
Met Phe Leu Trp Leu Phe Leu Ile Leu Ser Ala Leu Ile Ser Ser Thr
 1      5      10      15
Asn Ala Asp Ser Asp Ile Ser Val Glu Ile Cys Asn Val Cys Ser Cys
      20      25      30
Val Ser Val Glu Asn Val Leu Tyr Val Asn Cys Glu Lys Val Ser Val
      35      40      45
Tyr Arg Pro Asn Gln Leu Lys Pro Pro Trp Ser Asn Phe Tyr His Leu
      50      55      60
Asn Phe Gln Asn Asn Phe Leu Asn Ile Leu Tyr Pro Asn Thr Phe Leu
      65      70      75      80
Asn Phe Ser His Ala Val Ser Leu His Leu Gly Asn Asn Lys Leu Gln
      85      90      95 96

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<210> 1798
 <211> 91
 <212> PRT
 <213> Homo sapiens

<400> 1798
 Met Arg Pro Ala Leu Ala Val Gly Leu Val Phe Ala Gly Cys Cys Ser
 1 5 10 15
 Asn Val Ile Phe Leu Glu Leu Leu Ala Arg Lys His Pro Gly Cys Gly
 20 25 30
 Asn Ile Val Thr Phe Ala Gln Phe Leu Phe Ile Ala Val Glu Gly Phe
 35 40 45
 Leu Phe Glu Ala Asp Leu Gly Arg Lys Pro Pro Ala Ile Pro Ile Arg
 50 55 60
 Tyr Tyr Ala Ile Met Val Thr Met Phe Phe Thr Val Ser Val Val Asn
 65 70 75 80
 Asn Tyr Ala Leu Asn Leu Asn Ile Ala Met Pro
 85 90 91

<210> 1799
 <211> 77
 <212> PRT
 <213> Homo sapiens

<400> 1799
 Met Arg Ser Leu Val Trp Val Leu Ile Gln Gln Leu Thr Pro Leu Tyr
 1 5 10 15
 Lys Gly Glu Thr Trp Thr Gln Thr Cys Thr Glu Asp His Val Thr Met
 20 25 30
 Lys Ala Glu Ile Arg Val Met Leu Leu Glu Ala Arg Glu Asp Cys Gln
 35 40 45
 Leu Met Thr Lys Arg Ser Gln Glu Thr Gly Leu Gln Arg Ile Leu Pro
 50 55 60
 Glu Gly Ser Gln Lys Glu Pro Thr Leu Thr Thr Pro *
 65 70 75 76

<210> 1800
 <211> 182
 <212> PRT
 <213> Homo sapiens

<400> 1800
 Met Ser Leu Lys Met Leu Ile Ser Arg Asn Lys Leu Ile Leu Leu Leu
 1 5 10 15
 Gly Ile Val Phe Phe Glu Arg Gly Lys Ser Ala Thr Leu Ser Leu Pro
 20 25 30
 Lys Ala Pro Ser Cys Gly Gln Ser Leu Val Lys Val Gln Pro Trp Asn

```

      35      40      45
Tyr Phe Asn Ile Phe Ser Arg Ile Leu Gly Gly Ser Gln Val Glu Lys
      50      55      60
Gly Ser Tyr Pro Trp Gln Val Ser Leu Lys Gln Arg Gln Lys His Ile
      65      70      75      80
Cys Gly Gly Ser Ile Val Ser Pro Gln Trp Val Ile Thr Ala Ala His
      85      90      95
Cys Ile Ala Asn Arg Asn Ile Val Ser Thr Leu Asn Val Thr Ala Gly
      100      105      110
Glu Tyr Asp Leu Ser Gln Thr Asp Pro Gly Glu Gln Thr Leu Thr Ile
      115      120      125
Glu Thr Val Ile Ile His Pro His Phe Ser Thr Lys Lys Pro Met Asp
      130      135      140
Tyr Asp Ile Ala Leu Leu Lys Met Ala Gly Ala Phe Gln Phe Gly His
      145      150      155      160
Phe Val Gly Pro Ile Cys Leu Pro Glu Leu Arg Glu Gln Phe Glu Ala
      165      170      175
Gly Phe Ile Cys Thr Thr
      180      182

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<210> 1801
 <211> 202
 <212> PRT
 <213> Homo sapiens

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      <400> 1801
Met Thr Glu Ala Thr Phe Asp Thr Leu Arg Leu Trp Leu Ile Ile Leu
      1      5      10      15
Leu Cys Ala Leu Arg Leu Ala Met Met Arg Ser His Leu Gln Ala Tyr
      20      25      30
Leu Asn Leu Ala Gln Lys Cys Val Asp Gln Met Lys Lys Glu Ala Gly
      35      40      45
Arg Ile Ser Thr Val Glu Leu Gln Lys Met Val Ala Arg Val Phe Tyr
      50      55      60
Tyr Leu Cys Val Ile Ala Leu Gln Tyr Val Ala Pro Leu Val Met Leu
      65      70      75      80
Leu His Thr Thr Leu Leu Lys Thr Leu Gly Asn His Ser Trp Gly
      85      90      95
Ile Tyr Pro Glu Ser Ile Ser Thr Leu Pro Val Asp Asn Ser Leu Leu
      100      105      110
Ser Asn Ser Val Tyr Ser Glu Leu Pro Ser Ala Glu Gly Lys Met Lys
      115      120      125
His Asn Ala Arg Gln Gly Pro Ala Val Pro Pro Gly Met Gln Ala Tyr
      130      135      140
Gly Ala Ala Pro Phe Glu Asp Leu Gln Leu Asp Phe Thr Glu Met Pro
      145      150      155      160
Lys Cys Gly Asp Leu Ile Pro Arg Phe Gly Leu Pro Leu Arg Ile Gly
      165      170      175
Ser Asp Asn Gly Leu Ala Phe Val Ala Asp Leu Val Gln Lys Thr Ala
      180      185      190
Lys Trp Lys Gly Pro Gln Ile Val Val Leu
      195      200      202

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<210> 1802

<211> 172
 <212> PRT
 <213> Homo sapiens

<400> 1802
 Met Asn Asn Phe Arg Ala Thr Ile Leu Phe Trp Ala Ala Ala Ala Trp
 1 5 10 15
 Ala Lys Ser Gly Lys Pro Ser Gly Glu Met Asp Glu Val Gly Val Gln
 20 25 30
 Lys Cys Lys Asn Ala Leu Lys Leu Pro Val Leu Glu Val Leu Pro Gly
 35 40 45
 Gly Gly Trp Asp Asn Leu Arg Asn Val Asp Met Gly Arg Val Met Glu
 50 55 60
 Leu Thr Tyr Ser Asn Cys Arg Thr Thr Glu Asp Gly Gln Tyr Ile Ile
 65 70 75 80
 Pro Asp Glu Ile Phe Thr Ile Pro Gln Lys Gln Ser Asn Leu Glu Met
 85 90 95
 Asn Ser Glu Ile Leu Glu Ser Trp Ala Asn Tyr Gln Ser Ser Thr Ser
 100 105 110
 Tyr Ser Ile Asn Thr Glu Leu Ser Leu Phe Ser Lys Val Asn Gly Lys
 115 120 125
 Phe Ser Thr Glu Phe Gln Arg Met Lys Thr Leu Gln Val Lys Asp Gln
 130 135 140
 Ala Ile Thr Thr Arg Val Gln Val Arg Asn Leu Val Tyr Thr Val Lys
 145 150 155 160
 Ile Asn Pro Thr Leu Glu Leu Ser Ser Gly Phe Arg
 165 170 172

<210> 1803
 <211> 158
 <212> PRT
 <213> Homo sapiens

<400> 1803
 Met Ser Leu Arg Leu Gly Pro Ala Trp Arg His Leu Thr Cys Leu Gly
 1 5 10 15
 Thr Lys His Ser Lys Ala Asn Ser Val Leu Ala Ser Gln His Ala Gly
 20 25 30
 Phe Phe Val Ala Gln Gly Arg Trp Ala Ile His Arg Ala Phe Ser Ser
 35 40 45
 Arg Thr Ser Pro Thr Pro Pro Arg Gly Pro Leu Leu Leu Pro Gly Arg
 50 55 60
 His Pro Leu Leu Ser Arg Arg Arg Ala Gln Ala Ile Arg Ser Ser Thr
 65 70 75 80
 Arg Pro Ser Leu Pro Ala His Leu Phe Lys Pro Ala Pro Ala Ile Ala
 85 90 95
 Leu Ile Val Ser Pro Leu Arg Phe Pro Arg Arg Thr Ser Pro Cys His
 100 105 110
 Leu Ser Gly Pro Pro Ala Pro Pro Cys Arg Thr Leu His Thr Leu Leu
 115 120 125
 Arg Pro Val Cys Val Val Arg Arg Thr Pro Pro Val Phe Phe Thr Ser
 130 135 140
 Phe Thr Pro Ala Arg Ala Ala Val Ala Ser His Pro Thr Pro
 145 150 155 158

<210> 1804
 <211> 102
 <212> PRT
 <213> Homo sapiens

<400> 1804
 Met Gly Leu Gly Gln Pro Gln Ala Trp Leu Leu Gly Leu Pro Thr Ala
 1 5 10 15
 Val Val Tyr Gly Ser Leu Ala Leu Phe Thr Thr Ile Leu His Asn Val
 20 25 30
 Phe Leu Leu Tyr Tyr Val Asp Thr Phe Val Ser Val Tyr Lys Ile Asn
 35 40 45
 Lys Met Ala Phe Trp Val Gly Glu Thr Val Phe Leu Leu Trp Asn Ser
 50 55 60
 Leu Asn Asp Pro Leu Phe Gly Trp Leu Ser Asp Arg Gln Phe Leu Ser
 65 70 75 80
 Ser Gln Pro Arg Ser Gly Ala Gly Leu Ser Ser Arg Ala Val Val Leu
 85 90 95
 Ala Arg Val Gln Ala Leu
 100 102

<210> 1805
 <211> 54
 <212> PRT
 <213> Homo sapiens

<400> 1805
 Met Ala Asp Ser Val Leu Thr Leu Val Phe Thr Ser Cys Leu Leu Ser
 1 5 10 15
 Glu Leu Ser Leu Val Cys Ser Asp Phe Arg Pro Thr Pro Ile Ser Tyr
 20 25 30
 Gln Ser Arg Tyr Gly Ser Gly Asp Gly Trp Ile Arg Cys Lys Ser Glu
 35 40 45
 Val Arg Glu Thr Gln *
 50 53

<210> 1806
 <211> 56
 <212> PRT
 <213> Homo sapiens

<400> 1806
 Met Leu Ser Val Lys Arg Phe Arg Ala Met Val Met Phe Phe Met Ala
 1 5 10 15
 Met Val Ala Met Met Lys Asn Lys Cys Gln Gln Thr Asn Glu Ala Lys
 20 25 30
 Phe Cys Val His Met Tyr Leu His Phe Tyr Phe Ser Ser His Ser Ser
 35 40 45
 Ala Val Cys Ile Ser Ser Pro Leu
 50 55 56

<210> 1807
 <211> 47
 <212> PRT
 <213> Homo sapiens

<400> 1807
 Met Gln Ser Met Ile Asn Met Ile Val Ser Leu Leu Gly Leu Val Ala
 1 5 10 15
 Thr Val Thr Leu Ile Pro Ala Phe Arg Gly His Phe Ile Ala Ala Arg
 20 25 30
 Leu Gly Gly Gln Ser Leu Gly Lys Thr Ser Arg Gln His Met *
 35 40 45 46

<210> 1808
 <211> 119
 <212> PRT
 <213> Homo sapiens

<400> 1808
 Met Ala Ala Ser Leu Leu Ala Val Leu Leu Leu Leu Leu Leu Glu Arg
 1 5 10 15
 Gly Met Phe Ser Ser Pro Ser Pro Pro Ala Leu Leu Glu Lys Val
 20 25 30
 Phe Gln Tyr Ile Asp Leu His Gln Asp Glu Phe Val Gln Thr Leu Lys
 35 40 45
 Glu Trp Val Ala Ile Glu Ser Asp Ser Val Gln Pro Val Pro Arg Phe
 50 55 60
 Arg Gln Glu Leu Phe Arg Met Met Ala Val Ala Ala Asp Thr Leu Gln
 65 70 75 80
 Arg Leu Gly Ala Arg Val Ala Ser Val Asp Met Gly Pro Gln Gln Leu
 85 90 95
 Pro Asp Gly Gln Ser Leu Pro Ile Pro Pro Val Ile Leu Ala Glu Leu
 100 105 110
 Gly Ser Asp Pro Thr Lys Gly
 115 119

<210> 1809
 <211> 91
 <212> PRT
 <213> Homo sapiens

<400> 1809
 Met Ser Arg Ser His Val Ala Leu Leu Gly Leu Ser Leu Leu Leu Met
 1 5 10 15
 Leu Leu Leu Tyr Ala Gly Leu Pro Ser Pro Pro Glu Gln Thr Ser Cys
 20 25 30
 Leu Trp Gly Asp Pro Asn Val Thr Val Leu Ala Val Ser Thr Pro Ala
 35 40 45
 Asn Ser Pro Met Phe Tyr Leu Glu Gly Leu Pro Leu His Leu Ala His

50 55 60
 Arg Val Asp Val Ile Pro Leu Ser Ser Leu Gly Pro Leu Val Ser Pro
 65 70 75 80
 Leu Arg Cys Gln Ala Leu Pro Pro Arg Leu Ser
 85 90 91

<210> 1810
 <211> 58
 <212> PRT
 <213> Homo sapiens

<400> 1810
 Met Leu Leu Phe Gly Leu Cys Trp Gly Pro Tyr Val Ala Thr Leu Leu
 1 5 10 15
 Leu Ser Val Leu Ala Tyr Glu Gln Arg Pro Pro Leu Gly Pro Gly Thr
 20 25 30
 Leu Leu Ser Leu Leu Ser Leu Gly Ser Ala Lys Ala Ala Val Pro
 35 40 45
 Val Ala Met Gly Leu Gly Asp Gln Arg Tyr
 50 55 58

<210> 1811
 <211> 48
 <212> PRT
 <213> Homo sapiens

<400> 1811
 Met Ala Ser Ala Ser Phe Ser Leu Leu Ile Cys Gly Phe Leu Ala Ser
 1 5 10 15
 Leu Ser Leu Gln Arg Ile Glu Glu Leu Gly Leu Gly Leu Gly Leu Gly
 20 25 30
 Phe Gly Leu Arg Glu Cys Cys Gly Trp Phe Gly Leu Leu Ser Leu Val
 35 40 45 48

<210> 1812
 <211> 84
 <212> PRT
 <213> Homo sapiens

<400> 1812
 Met Lys Val Leu Leu Ala Val Ala Leu Ile Ala Arg Thr Val Phe Phe
 1 5 10 15
 Leu Leu Leu Ala Gly Pro Ser Ala Ala Asp Asp Lys Lys Lys Gly Pro
 20 25 30
 Lys Val Thr Val Lys Val Tyr Phe Asp Leu Arg Ile Gly Asp Glu Asp
 35 40 45
 Val Arg Arg Glu Ile Phe Gly Leu Phe Gly Lys Thr Ala Pro Lys Thr
 50 55 60

Glu Asp Asn Phe Val Ala Leu Ala Thr Gly Gln Lys Gly Phe Gly Tyr
 65 70 75 80
 Lys Asn Ser *
 83

<210> 1813
 <211> 46
 <212> PRT
 <213> Homo sapiens

<400> 1813
 Met Ala Ala Ala Asp Asp Thr Ile Leu Gly Phe Arg Ala Ala Leu Leu
 1 5 10 15
 Ile Leu Val Ala Ala Ala Ala Leu Ser Pro Lys Val Ala Cys Arg
 20 25 30
 Val Gly Thr Val Arg Arg Arg Glu Thr Pro Gln Pro Ser Ala
 35 40 45 46

<210> 1814
 <211> 65
 <212> PRT
 <213> Homo sapiens

<400> 1814
 Met Ile Ile Tyr Leu Thr Phe Pro Val Ala Met Phe Trp Val Ser Asn
 1 5 10 15
 Gln Ala Glu Trp Phe Glu Asp Asp Val Ile Gln Arg Lys Arg Glu Leu
 20 25 30
 Trp Pro Pro Glu Lys Leu Gln Glu Ile Glu Glu Phe Lys Glu Arg Leu
 35 40 45
 Arg Lys Arg Arg Glu Glu Lys Leu Leu Arg Asp Ala Gln Gln Asn Ser
 50 55 60 64
 *

<210> 1815
 <211> 100
 <212> PRT
 <213> Homo sapiens

<400> 1815
 Met Phe Lys Ser Lys Leu Leu Asn Phe Tyr Ile Phe Val Asn Cys Met
 1 5 10 15
 Asn Phe Leu Met Leu Ser Ile Ala Ser Phe Asn Pro Phe Trp Ser Glu
 20 25 30
 Ile Ile Val Cys Asn Ile Gln Phe Phe Tyr Tyr Thr Leu Ser Ser Arg
 35 40 45
 Val His Val Gln Asn Val Gln Val Cys Tyr Thr Gly Ile His Val Pro
 50 55 60
 Cys Trp Phe Ala Ala Pro Ile Asn Ser Ser Phe Thr Leu Gly Ile Ser

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65              70              75              80
Pro Asn Ala Ile Pro Phe Ile Val Pro His Pro Gln Thr Gly Pro Asn
              85              90              95
Val Arg Cys Ser
              100

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<210> 1816
<211> 115
<212> PRT
<213> Homo sapiens

<221> misc_feature
<222> (1)...(115)
<223> Xaa = any amino acid or nothing

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<400> 1816
Met Phe Cys Phe Leu Val Ser Val Leu Tyr Ser Lys Ala Lys Leu Ala
 1              5              10              15
Ser Ala Cys Gly Gly Ile Ile Tyr Phe Leu Ser Tyr Val Pro Tyr Met
              20              25              30
Tyr Val Ala Ile Arg Glu Glu Val Ala His Asp Lys Ile Thr Ala Phe
              35              40              45
Glu Lys Cys Ile Ala Ser Leu Met Ser Thr Thr Ala Phe Gly Leu Gly
              50              55              60
Ser Lys Tyr Phe Ala Leu Tyr Glu Val Pro Gly Val Gly Ile Gln Trp
65              70              75              80
His Thr Phe Ser Gln Ser Pro Val Glu Gly Glu Asp Leu Asn Leu Pro
              85              90              95
Pro Pro Pro Pro Met Met Pro Ala Pro Xaa Val Val Tyr Gly Ile Leu
              100              105              110
Thr Lys *
              114

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<210> 1817
<211> 144
<212> PRT
<213> Homo sapiens

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<400> 1817
Met Val Leu Gly Leu Leu Val Gln Ile Trp Ala Leu Gln Glu Ala Ser
 1              5              10              15
Ser Leu Ser Val Gln Gln Gly Pro Asn Leu Leu Gln Val Arg Gln Gly
              20              25              30
Ser Gln Ala Thr Leu Val Cys Gln Val Asp Gln Ala Thr Ala Trp Glu
              35              40              45
Arg Leu Arg Val Lys Trp Thr Lys Asp Gly Ala Ile Leu Cys Gln Pro
              50              55              60
Tyr Ile Thr Asn Gly Ser Leu Ser Leu Gly Val Cys Gly Pro Gln Gly
65              70              75              80
Arg Leu Ser Trp Gln Ala Pro Ser His Leu Thr Leu Gln Leu Asp Pro
              85              90              95
Val Ser Leu Asn His Ser Gly Ala Tyr Val Cys Trp Ala Ala Val Glu
              100              105              110

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Ile Pro Glu Leu Glu Glu Ala Glu Gly Asn Ile Thr Arg Leu Phe Val
 115 120 125
 Asp Pro Asp Asp Pro Thr Gln Asn Arg Asn Arg Ile Ala Ser Phe Pro
 130 135 140 144

<210> 1818
 <211> 115
 <212> PRT
 <213> Homo sapiens

<400> 1818
 Met Gln Ala Asp Arg Gly Gly Val Leu Phe Leu Val Ala Leu Pro Gly
 1 5 10 15
 Leu Trp Glu Thr Val Leu Arg His Pro Gly Ala Ser Pro Glu Pro Val
 20 25 30
 Ser Leu His Thr Gly Leu Ala Ala Glu Pro Leu Leu Gly Trp Arg Ala
 35 40 45
 Glu Val Ala Thr Ala Ala Gly Leu Gln Asp Arg Arg Ile Gly Arg Arg
 50 55 60
 Ser Leu Pro Ala Thr Leu Pro Pro Pro Phe Pro Gln Ala Gly Asp Leu
 65 70 75 80
 Arg Glu Ser Ile Leu Leu Pro Cys Arg Glu Ser Arg Ser Thr Ser
 85 90 95
 Trp Leu Ser Pro Tyr Trp Val Pro Glu Ile Pro Gly Thr Leu His Asp
 100 105 110
 Arg Gly Arg
 115

<210> 1819
 <211> 70
 <212> PRT
 <213> Homo sapiens

<400> 1819
 Met Pro Trp Leu Leu Ser Ala Pro Lys Leu Val Pro Ala Val Ala Asn
 1 5 10 15
 Val Arg Gly Leu Ser Gly Cys Met Leu Cys Ser Gln Arg Arg Tyr Ser
 20 25 30
 Leu Gln Pro Val Pro Glu Arg Arg Ile Pro Asn Arg Tyr Leu Gly Gln
 35 40 45
 Pro Ser Pro Phe Thr His Pro His Leu Leu Arg Pro Asp Ser Asn Ser
 50 55 60
 Cys Trp Glu Val Gly *
 65 69

<210> 1820
 <211> 635
 <212> PRT
 <213> Homo sapiens

<400> 1820

Met	Leu	Arg	Ser	Leu	Leu	Val	Tyr	Met	Leu	Phe	Leu	Leu	Val	Thr	Leu
1				5					10					15	
Leu	Ala	Ser	Tyr	Gly	Asp	Ala	Ser	Cys	His	Gly	His	Ala	Tyr	Arg	Leu
			20					25					30		
Gln	Ser	Ala	Ile	Lys	Gln	Glu	Leu	His	Ser	Arg	Ala	Phe	Leu	Ala	Ile
		35					40					45			
Thr	Arg	Ser	Glu	Glu	Leu	Trp	Pro	Trp	Met	Ala	His	Val	Leu	Leu	Pro
	50					55					60				
Tyr	Val	His	Gly	Asn	Gln	Ser	Ser	Pro	Glu	Leu	Gly	Pro	Pro	Arg	Leu
65					70					75					80
Arg	Gln	Val	Arg	Leu	Gln	Glu	Ala	Leu	Tyr	Pro	Asp	Pro	Pro	Gly	Pro
				85					90					95	
Arg	Val	His	Thr	Cys	Ser	Ala	Ala	Gly	Gly	Phe	Ser	Thr	Ser	Asp	Tyr
			100					105					110		
Asp	Val	Gly	Trp	Glu	Ser	Pro	His	Asn	Gly	Ser	Gly	Thr	Trp	Ala	Tyr
	115						120					125			
Ser	Ala	Pro	Asp	Leu	Leu	Gly	Ala	Trp	Ser	Trp	Gly	Ser	Cys	Ala	Val
	130					135					140				
Tyr	Asp	Ser	Gly	Gly	Tyr	Val	Gln	Glu	Leu	Gly	Leu	Ser	Leu	Glu	Glu
145					150					155					160
Ser	Arg	Asp	Arg	Leu	Arg	Phe	Leu	Gln	Leu	His	Asn	Trp	Leu	Asp	Asn
				165					170					175	
Arg	Ser	Arg	Ala	Val	Phe	Leu	Glu	Leu	Thr	Arg	Tyr	Ser	Pro	Ala	Val
			180					185					190		
Gly	Leu	His	Ala	Ala	Val	Thr	Leu	Arg	Leu	Glu	Phe	Pro	Ala	Ala	Gly
	195					200						205			
Arg	Ala	Leu	Ala	Ala	Leu	Ser	Val	Arg	Pro	Phe	Ala	Leu	Arg	Arg	Leu
	210					215					220				
Ser	Ala	Gly	Leu	Ser	Leu	Pro	Leu	Leu	Thr	Ser	Val	Cys	Leu	Leu	Leu
225					230					235					240
Phe	Ala	Val	His	Phe	Ala	Val	Ala	Glu	Ala	Arg	Thr	Trp	His	Arg	Glu
				245					250					255	
Gly	Arg	Trp	Arg	Val	Leu	Arg	Leu	Gly	Ala	Trp	Ala	Arg	Trp	Leu	Leu
		260						265					270		
Val	Ala	Leu	Thr	Ala	Ala	Thr	Ala	Leu	Val	Arg	Leu	Ala	Gln	Leu	Gly
		275					280					285			
Ala	Ala	Asp	Arg	Gln	Trp	Thr	Arg	Phe	Val	Arg	Gly	Arg	Pro	Arg	Arg
	290					295					300				
Phe	Thr	Ser	Phe	Asp	Gln	Val	Ala	His	Val	Ser	Ser	Ala	Ala	Arg	Gly
305					310					315					320
Leu	Ala	Ala	Ser	Leu	Phe	Leu	Leu	Leu	Val	Lys	Ala	Ala	Gln	His	
				325					330				335		
Val	Arg	Phe	Val	Arg	Gln	Trp	Ser	Val	Phe	Gly	Lys	Thr	Leu	Cys	Arg
		340					345						350		
Ala	Leu	Pro	Glu	Leu	Leu	Gly	Val	Thr	Leu	Gly	Leu	Val	Val	Leu	Gly
	355					360						365			
Val	Ala	Tyr	Ala	Gln	Leu	Ala	Ile	Leu	Leu	Val	Ser	Ser	Cys	Val	Asp
	370					375					380				
Ser	Leu	Trp	Ser	Val	Ala	Gln	Ala	Leu	Leu	Val	Leu	Cys	Pro	Gly	Thr
385					390					395					400
Gly	Leu	Ser	Thr	Leu	Cys	Pro	Ala	Glu	Ser	Trp	His	Leu	Ser	Pro	Leu
				405					410				415		
Leu	Cys	Val	Gly	Leu	Trp	Ala	Leu	Arg	Leu	Trp	Gly	Ala	Leu	Arg	Leu
			420					425				430			
Gly	Ala	Val	Ile	Leu	Arg	Trp	Arg	Tyr	His	Ala	Leu	Arg	Gly	Glu	Leu
		435					440					445			

Tyr Arg Pro Ala Trp Glu Pro Gln Asp Tyr Glu Met Val Glu Leu Phe
 450 455 460
 Leu Arg Arg Leu Arg Leu Trp Met Gly Leu Ser Lys Val Lys Glu Phe
 465 470 475 480
 Arg His Lys Val Arg Phe Glu Gly Met Glu Pro Leu Pro Ser Arg Ser
 485 490 495
 Ser Arg Gly Ser Lys Val Ser Pro Asp Val Pro Pro Pro Ser Ala Gly
 500 505 510
 Ser Asp Ala Ser His Pro Ser Thr Ser Ser Ser Gln Leu Asp Gly Leu
 515 520 525
 Ser Val Ser Leu Gly Arg Leu Gly Thr Arg Cys Glu Pro Glu Pro Ser
 530 535 540
 Arg Leu Gln Ala Val Phe Glu Ala Leu Leu Thr Gln Phe Asp Arg Leu
 545 550 555 560
 Asn Gln Ala Thr Glu Asp Val Tyr Gln Leu Glu Gln Gln Leu His Ser
 565 570 575
 Leu Gln Gly Arg Arg Ser Ser Arg Ala Pro Ala Gly Ser Ser Arg Gly
 580 585 590
 Pro Ser Pro Gly Leu Arg Pro Ala Leu Pro Ser Arg Leu Ala Arg Ala
 595 600 605
 Ser Arg Gly Val Asp Leu Ala Thr Gly Pro Ser Arg Thr Pro Leu Arg
 610 615 620
 Ala Lys Asn Lys Val His Pro Ser Ser Thr *
 625 630 634

<210> 1821
 <211> 84
 <212> PRT
 <213> Homo sapiens

<400> 1821
 Met Gly Ser Thr Trp Gly Ser Pro Gly Trp Val Arg Leu Ala Leu Cys
 1 5 10 15
 Leu Thr Gly Leu Met Leu Ser Leu Tyr Thr Leu His Val Lys Ala Ala
 20 25 30
 Arg Ala Arg Asn Arg Asp Tyr Arg Ala Leu Cys Asp Val Gly Thr Val
 35 40 45
 Ile Ser Cys Thr Arg Val Phe Tyr Ser Lys Leu Pro Ala Asp Thr Leu
 50 55 60
 Asp Leu Cys Pro Asp Ala Glu Leu Pro Gly Val Ser Arg Trp Phe
 65 70 75 80
 Cys Leu Pro Gly
 84

<210> 1822
 <211> 108
 <212> PRT
 <213> Homo sapiens

<400> 1822
 Met Ala Leu Asp Phe Val Asn Val Leu Leu Cys Gln Leu Ala Glu Val
 1 5 10 15
 Thr Leu Gly Val Leu Arg Glu Glu Gly Ala Ser Leu Leu Val Ala Leu


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<210> 1823
<211> 74
<212> PRT
<213> Homo sapiens
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<210> 1824
<211> 58
<212> PRT
<213> Homo sapiens
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<210> 1825
<211> 225
<212> PRT
<213> Homo sapiens
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1003

Met Ala Cys Lys Gly Leu Leu Gln Gln Val Gln Gly Pro Arg Leu Pro
 1 5 10 15
 Trp Thr Arg Leu Leu Leu Leu Leu Val Phe Ala Val Gly Phe Leu
 20 25 30
 Cys His Asp Leu Arg Ser His Ser Ser Phe Gln Ala Ser Leu Thr Gly
 35 40 45
 Arg Leu Leu Arg Ser Ser Gly Phe Leu Pro Ala Ser Gln Gln Ala Cys
 50 55 60
 Ala Lys Leu Tyr Ser Tyr Ser Leu Gln Gly Tyr Ser Trp Leu Gly Glu
 65 70 75 80
 Thr Leu Pro Leu Trp Gly Ser His Leu Leu Thr Val Val Arg Pro Ser
 85 90 95
 Leu Gln Leu Ala Trp Ala His Thr Asn Ala Thr Val Ser Phe Leu Ser
 100 105 110
 Ala His Cys Ala Ser His Leu Ala Trp Phe Gly Asp Ser Leu Thr Ser
 115 120 125
 Leu Ser Gln Arg Leu Gln Ile Gln Leu Pro Asp Ser Val Asn Gln Leu
 130 135 140
 Leu Arg Tyr Leu Arg Glu Leu Pro Leu Leu Phe His Gln Asn Val Leu
 145 150 155 160
 Leu Pro Leu Trp His Leu Leu Leu Glu Ala Leu Ala Trp Ala Gln Glu
 165 170 175
 His Cys His Glu Ala Cys Arg Gly Glu Val Thr Trp Asp Cys Met Lys
 180 185 190
 Thr Gln Leu Ser Glu Ala Val His Trp Thr Trp Leu Cys Leu Gln Asp
 195 200 205
 Ile Thr Val Ala Phe Leu Asp Trp Ala Leu Ala Leu Ile Ser Gln Gln
 210 215 220 224
 *

<210> 1826
 <211> 119
 <212> PRT
 <213> Homo sapiens

<400> 1826
 Met Tyr Arg Glu Val Cys Ser Ile Arg Phe Leu Phe Thr Ala Val Ser
 1 5 10 15
 Leu Leu Ser Leu Phe Leu Ser Ala Phe Trp Leu Gly Leu Leu Tyr Leu
 20 25 30
 Val Ser Pro Leu Glu Asn Glu Pro Lys Glu Met Leu Thr Leu Ser Glu
 35 40 45
 Tyr His Glu Arg Ala Arg Ser Gln Gly Gln Gln Leu Leu Gln Phe Gln
 50 55 60
 Ala Glu Leu Asp Lys Leu His Lys Glu Ala Ser Leu Val Cys Gly Cys
 65 70 75 80
 Pro Ser Leu Arg Glu Val Pro Ser Ser Ala Val Ser Arg Leu Glu Pro
 85 90 95
 Pro Ser Ile Ala Gln Pro Leu Leu Ser Arg Leu Gln Leu Tyr Leu Ser
 100 105 110
 Asp Pro Ser Ser Tyr Leu Val
 115 119

<210> 1827
 <211> 58
 <212> PRT
 <213> Homo sapiens

<400> 1827
 Met Lys Leu Met Arg Pro Leu Met Leu Leu Tyr Ile Ser Gln Leu Tyr
 1 5 10 15
 Met Leu Met Lys Arg Asn Ser Pro His Ile Gly Asp Cys Leu Ser Leu
 20 25 30
 Leu Phe Leu Gln Glu Lys Lys Gln Lys Glu Val Tyr Thr Leu Leu Ala
 35 40 45
 Met Met Gln Val Ser Phe Ile Leu Val *
 50 55 57

<210> 1828
 <211> 102
 <212> PRT
 <213> Homo sapiens

<400> 1828
 Met Gln Pro Ser Gly Leu Glu Gly Pro Gly Thr Phe Gly Arg Trp Pro
 1 5 10 15
 Leu Leu Ser Leu Leu Leu Leu Leu Leu Gln Pro Val Thr Cys
 20 25 30
 Ala Tyr Thr Thr Pro Gly Pro Pro Arg Ala Leu Thr Thr Leu Gly Ala
 35 40 45
 Pro Arg Ala His Thr Met Pro Gly Thr Tyr Ala Pro Ser Thr Thr Leu
 50 55 60
 Ser Ser Pro Ser Thr Gln Gly Leu Gln Glu Gln Ala Arg Ala Leu Met
 65 70 75 80
 Arg Asp Phe Pro Leu Val Asp Gly His Asn Asp Leu Pro Leu Val Leu
 85 90 95
 Arg Gln Val Tyr His Asn
 100 102

<210> 1829
 <211> 88
 <212> PRT
 <213> Homo sapiens

<400> 1829
 Met Arg Lys Ile Tyr Thr Thr Val Leu Phe Ala Asn Ile Tyr Leu Ala
 1 5 10 15
 Pro Leu Ser Leu Ile Val Ile Met Tyr Gly Arg Ile Gly Ile Ser Leu
 20 25 30
 Phe Arg Ala Ala Val Pro His Thr Gly Arg Lys Asn Gln Glu Gln Trp
 35 40 45
 His Val Val Ser Arg Lys Lys Gln Lys Ile Ile Lys Met Leu Leu Ile
 50 55 60
 Val Ala Leu Leu Phe Ile Leu Ser Trp Leu Pro Leu Trp Thr Leu Met
 65 70 75 80

Met Leu Ser Asp Tyr Ala Lys Pro
85 88

<210> 1830
<211> 120
<212> PRT
<213> Homo sapiens

<400> 1830
Met Lys Trp Arg Arg Lys Ser Ala Tyr Trp Lys Ala Leu Lys Val Phe
1 5 10 15
Lys Leu Pro Val Glu Phe Leu Leu Leu Leu Thr Val Pro Val Val Asp
20 25 30
Pro Asp Lys Asp Asp Gln Asn Trp Lys Arg Pro Leu Asn Cys Leu His
35 40 45
Leu Val Ile Ser Pro Leu Val Val Val Leu Thr Leu Gln Ser Gly Thr
50 55 60
Tyr Gly Val Tyr Glu Ile Gly Gly Leu Val Pro Val Trp Val Val Val
65 70 75 80
Val Ile Ala Gly Thr Ala Leu Ala Ser Val Thr Phe Phe Ala Thr Ser
85 90 95
Asp Ser Gln Pro Pro Arg Leu His Trp Leu Phe Ala Phe Leu Gly Phe
100 105 110
Leu Thr Ser Ala Leu Trp Ile Asn
115 120

<210> 1831
<211> 64
<212> PRT
<213> Homo sapiens

<400> 1831
Met Phe Trp Arg Gly Trp Gly Ala Pro Leu Trp Ala Trp Pro Thr Leu
1 5 10 15
Leu Thr Pro Ile Lys Cys Ser Ser Leu Tyr Asp Ser Phe Phe Ser Pro
20 25 30
Thr Asp Ala Leu Gly Leu Glu Ser Leu Leu Gly Thr Ala Ser Leu Trp
35 40 45
Pro Leu Leu Leu Ser Leu Thr Glu Leu Pro Ala Leu Leu Gln Met *
50 55 60 63

<210> 1832
<211> 89
<212> PRT
<213> Homo sapiens

<400> 1832
Met Gly Ile Lys His Phe Ser Gly Leu Phe Val Leu Leu Cys Ile Gly
1 5 10 15
Phe Gly Leu Ser Ile Leu Thr Thr Ile Gly Glu His Ile Val Tyr Arg

20 25 30
 Leu Leu Leu Pro Arg Ile Lys Asn Lys Ser Lys Leu Gln Tyr Trp Leu
 35 40 45
 His Thr Ser Gln Arg Leu His Arg Ala Ile Asn Thr Ser Phe Ile Glu
 50 55 60
 Glu Lys Gln Gln His Phe Lys Thr Lys Arg Val Glu Lys Arg Ser Asn
 65 70 75 80
 Val Gly Pro Arg Gln Leu Thr Val Trp
 85 89

<210> 1833
 <211> 60
 <212> PRT
 <213> Homo sapiens

<400> 1833
 Met Phe Leu Val Ser Ile Ile Cys Val Thr Leu Phe Phe Pro Ile Val
 1 5 10 15
 Ala Leu Phe Asp Leu Tyr Ala Thr Leu Ala His Cys Val Tyr Ala Phe
 20 25 30
 Ser Thr Asp Ser Leu Leu Pro Ala Val Met Leu Thr Ala Leu Pro Arg
 35 40 45
 Ser Leu Phe Phe Ser Ser Ser Leu Ile Leu Ser Ser
 50 55 60

<210> 1834
 <211> 62
 <212> PRT
 <213> Homo sapiens

<400> 1834
 Met Val Pro Ala Ala Gly Ala Leu Leu Trp Val Leu Leu Leu Asn Leu
 1 5 10 15
 Gly Pro Arg Ala Ala Gly Ala Gln Gly Leu Thr Gln Thr Pro Thr Glu
 20 25 30
 Met Gln Arg Val Met Leu Arg Phe Gly Cys Ser Val Ile Cys Cys Tyr
 35 40 45
 Cys Ile Ser Val Arg Thr Gly Arg Ser Arg Glu Thr Gly *
 50 55 60 61

<210> 1835
 <211> 71
 <212> PRT
 <213> Homo sapiens

<400> 1835
 Met Leu Leu Lys Ile Leu Lys Gly Cys Val Val Phe His His Leu Pro
 1 5 10 15
 Cys Ser Thr Gln Val Tyr Lys Pro Ser Leu Gly Met Trp Gly Phe Leu
 20 25 30

Ser Pro Leu Trp Glu Val Val Phe Cys His Thr Pro Cys Phe Arg Ala
 35 40 45
 Gln Pro Gln Leu Asp Arg Ala Gly Ser Ser Phe Leu Ile Tyr Pro Ser
 50 55 60
 Pro His Ser Thr Ser Asn *
 65 70

<210> 1836
 <211> 110
 <212> PRT
 <213> Homo sapiens

<400> 1836
 Met Leu Met Tyr Met Phe Tyr Val Leu Pro Phe Cys Gly Leu Ala Ala
 1 5 10 15
 Tyr Ala Leu Thr Phe Pro Gly Cys Ser Trp Leu Pro Asp Trp Ala Leu
 20 25 30
 Val Phe Ala Gly Gly Ile Gly Gln Ala Gln Phe Ser His Met Gly Ala
 35 40 45
 Ser Met His Leu Arg Thr Pro Phe Thr Tyr Arg Val Pro Glu Asp Thr
 50 55 60
 Trp Gly Cys Phe Phe Val Cys Asn Leu Leu Tyr Ala Leu Gly Pro His
 65 70 75 80
 Leu Leu Ala Tyr Arg Cys Leu Gln Trp Pro Ala Phe Phe His Gln Pro
 85 90 95
 Pro Pro Ser Asp Pro Leu Ala Leu His Lys Lys Gln His *
 100 105 109

<210> 1837
 <211> 91
 <212> PRT
 <213> Homo sapiens

<400> 1837
 Met Leu Leu Leu Leu Thr Trp Pro Tyr Ile Leu Leu Gly Phe Leu Phe
 1 5 10 15
 Cys Ala Phe Val Val Val Asn Gly Gly Ile Val Ile Gly Asp Arg Ser
 20 25 30
 Ser His Glu Ala Cys Leu His Phe Pro Gln Leu Phe Tyr Phe Phe Ser
 35 40 45
 Phe Thr Leu Phe Phe Ser Phe Pro His Leu Leu Ser Pro Ser Lys Ile
 50 55 60
 Lys Thr Phe Leu Ser Leu Val Trp Lys Arg Arg Ile Leu Phe Phe Val
 65 70 75 80
 Val Thr Leu Val Ser Val Phe Leu Val Trp Asn
 85 90 91

<210> 1838
 <211> 201
 <212> PRT
 <213> Homo sapiens

<400> 1838
 Met Pro Ile Gly Leu Arg Gly Leu Met Ile Ala Val Met Leu Ala Ala
 1 5 10 15
 Leu Met Ser Ser Leu Thr Ser Ile Phe Asn Ser Ser Ser Thr Leu Phe
 20 25 30
 Thr Met Asp Ile Trp Arg Arg Leu Arg Pro Arg Ser Gly Glu Arg Glu
 35 40 45
 Leu Leu Leu Val Gly Arg Leu Val Ile Val Ala Leu Ile Gly Val Ser
 50 55 60
 Val Ala Trp Ile Pro Val Leu Gln Asp Ser Asn Ser Gly Gln Leu Phe
 65 70 75 80
 Ile Tyr Met Gln Ser Val Thr Ser Ser Leu Ala Pro Pro Val Thr Ala
 85 90 95
 Val Phe Val Leu Gly Val Phe Trp Arg Arg Ala Asn Glu Gln Gly Ala
 100 105 110
 Phe Trp Gly Leu Ile Ala Gly Leu Val Val Gly Ala Thr Arg Leu Val
 115 120 125
 Leu Glu Phe Leu Asn Pro Ala Pro Pro Cys Gly Glu Pro Asp Thr Arg
 130 135 140
 Pro Ala Val Leu Gly Ser Ile His Tyr Leu His Phe Ala Val Ala Leu
 145 150 155 160
 Phe Ala Leu Ser Gly Ala Val Val Val Ala Gly Ser Leu Leu Thr Pro
 165 170 175
 Pro Pro Gln Ser Val Gln Ile Glu Asn Leu Thr Trp Trp Thr Leu Ala
 180 185 190
 Gln Asp Val Pro Leu Gly Thr Lys Ala
 195 200 201

<210> 1839
 <211> 130
 <212> PRT
 <213> Homo sapiens
 <221> misc_feature
 <222> (1)...(130)
 <223> Xaa = any amino acid or nothing

<400> 1839
 Met Leu Phe Phe Leu Gln Ser Leu Phe Met Leu Ala Thr Val Val Leu
 1 5 10 15
 Tyr Phe Ser His Leu Lys Glu Tyr Val Ala Ser Met Val Phe Ser Leu
 20 25 30
 Ala Leu Gly Trp Thr Asn Met Leu Tyr Tyr Thr Arg Gly Phe Gln Gln
 35 40 45
 Met Gly Ile Tyr Ala Val Met Ile Glu Lys Met Ile Leu Arg Asp Leu
 50 55 60
 Cys Arg Phe Met Phe Val Tyr Ile Val Phe Leu Phe Gly Phe Ser Thr
 65 70 75 80
 Ala Val Val Thr Leu Ile Glu Asp Gly Lys Asn Asp Ser Leu Pro Ser
 85 90 95
 Glu Ser Thr Ser His Arg Trp Arg Gly Phe Ser Xaa Thr Pro Leu Xaa
 100 105 110
 Leu Leu His Lys Leu Tyr Ser Thr Cys Leu Glu Leu Ser Asn Ser Thr
 115 120 125

Xaa Asp
130

<210> 1840
<211> 47
<212> PRT
<213> Homo sapiens

<400> 1840
Met Asn Arg Val Met Arg Gly Leu Ala Ile Thr Thr Thr Cys Leu Leu
1 5 10 15
Ser Met Leu Gln Ala Ile Thr Ile Ser Pro Ser Ile Leu Trp Asn His
20 25 30
Ala Ala Val Gln Tyr Val His Gly His Ser Leu Val Gln Ala *
35 40 45 46

<210> 1841
<211> 82
<212> PRT
<213> Homo sapiens

<400> 1841
Met Thr Ala Arg Leu Met Arg Ser Leu Leu Ala Ala Gln Leu Thr Phe
1 5 10 15
Val Tyr Arg Val Ala His Leu Met Asn Val Ala Gln Arg Ile Arg Gly
20 25 30
Asn Arg Pro Ile Lys Asn Glu Arg Leu Leu Ala Leu Leu Gly Asp Asn
35 40 45
Glu Lys Met Asn Leu Ser Asp Val Glu Leu Ile Pro Leu Pro Leu Glu
50 55 60
Pro Gln Val Lys Ile Arg Gly Ile Ile Pro Glu Thr Ala Thr Leu Phe
65 70 75 80
Lys Ser
82

<210> 1842
<211> 77
<212> PRT
<213> Homo sapiens

<400> 1842
Met Val Ala Asn Met Phe Tyr Ile Val Val Ile Met Ala Leu Val Leu
1 5 10 15
Leu Ser Phe Gly Val Pro Arg Lys Ala Ile Leu Tyr Pro His Glu Ala
20 25 30
Pro Ser Trp Thr Leu Ala Lys Asp Ile Val Phe His Pro Tyr Trp Met
35 40 45
Ile Phe Gly Glu Val Tyr Ala Tyr Glu Ile Asp Val Cys Ala Asn Asp
50 55 60
Ser Val Ile Pro Gln Ile Cys Gly Pro Ser Thr Arg Pro

65

70

75

77

<210> 1843
 <211> 109
 <212> PRT
 <213> Homo sapiens

<400> 1843
 Met Met His Asn Ile Ile Val Lys Glu Leu Ile Val Thr Phe Phe Leu
 1 5 10 15
 Gly Ile Thr Val Val Gln Met Leu Ile Ser Val Thr Gly Leu Lys Gly
 20 25 30
 Val Glu Ala Gln Asn Gly Ser Glu Ser Glu Val Phe Val Gly Lys Tyr
 35 40 45
 Glu Thr Leu Val Phe Tyr Trp Pro Ser Leu Leu Cys Leu Ala Phe Leu
 50 55 60
 Leu Gly Arg Phe Leu His Met Phe Val Lys Ala Leu Arg Val His Leu
 65 70 75 80
 Gly Trp Glu Leu Gln Val Glu Glu Lys Ser Val Leu Glu Val His Gln
 85 90 95
 Gly Glu His Val Lys Gln Leu Leu Arg Ile Pro Arg Pro
 100 105 109

<210> 1844
 <211> 85
 <212> PRT
 <213> Homo sapiens

<221> misc_feature
 <222> (1)...(85)
 <223> Xaa = any amino acid or nothing

<400> 1844
 Met Thr Ile His Leu Cys Ser Asn Leu Met Cys His Phe Leu Gln Arg
 1 5 10 15
 Met Gly Thr Ile Leu Leu Cys Pro Asn Met Gln Pro His Gln Asn Leu
 20 25 30
 Thr Thr Val Ile Cys Ser Lys Gly Asn Leu Leu Arg Ala Val Lys Gly
 35 40 45
 Ser Lys Ser Leu Arg Asn Ala Arg Lys Tyr Pro Phe His His Pro Pro
 50 55 60
 Xaa Xaa Glu Pro Pro Asn Gly Gly Gln Thr Arg Xaa Gly Gly Ala Arg
 65 70 75 80
 Phe Lys Gln Pro Thr
 85

<210> 1845
 <211> 110
 <212> PRT
 <213> Homo sapiens

<400> 1845
 Met Tyr Ala Leu Tyr Ile Thr Val His Gly Tyr Phe Leu Ile Thr Phe
 1 5 10 15
 Leu Phe Gly Met Val Val Leu Ala Leu Val Val Trp Lys Ile Phe Thr
 20 25 30
 Leu Ser Arg Ala Thr Ala Val Lys Glu Arg Gly Lys Asn Arg Lys Lys
 35 40 45
 Val Leu Thr Leu Leu Gly Leu Ser Ser Leu Val Gly Val Thr Trp Gly
 50 55 60
 Leu Ala Ile Phe Thr Pro Leu Gly Leu Ser Thr Val Tyr Ile Phe Ala
 65 70 75 80
 Leu Phe Asn Ser Leu Gln Gly Val Phe Ile Cys Cys Trp Phe Thr Ile
 85 90 95
 Leu Tyr Leu Pro Ser Gln Ser Thr Thr Val Ser Ser Ser Thr
 100 105 110

<210> 1846
 <211> 94
 <212> PRT
 <213> Homo sapiens

<400> 1846
 Met Thr Glu Pro Pro Gly Ala Ser Ser His Leu Arg Gln Ala Leu Arg
 1 5 10 15
 Cys Cys Gln Trp Leu Ala Gly Ile Pro Ser Gln Trp Val Leu Phe Trp
 20 25 30
 Glu Val Leu Trp Lys Trp Val Leu Gln Thr Asp Ala Ala Trp Ser Pro
 35 40 45
 Gly Phe Ser Pro Leu Pro Arg Gly Met Tyr Gln His Pro Ala Leu Pro
 50 55 60
 Glu Met Pro Ser Pro Phe Leu Gly Ile Leu Arg Leu Glu Tyr Val Lys
 65 70 75 80
 Leu Leu Gly Leu Cys Met Cys Leu Ser Thr Gly Ser Ser *
 85 90 93

<210> 1847
 <211> 1300
 <212> PRT
 <213> Homo sapiens

<400> 1847
 Met Ala Trp Lys Thr Leu Pro Ile Tyr Leu Leu Leu Leu Ser Val
 1 5 10 15
 Phe Val Ile Gln Gln Val Ser Ser Gln Asp Leu Ser Ser Cys Ala Gly
 20 25 30
 Arg Cys Gly Glu Gly Tyr Ser Arg Asp Ala Thr Cys Asn Cys Asp Tyr
 35 40 45
 Asn Cys Gln His Tyr Met Glu Cys Cys Pro Asp Phe Lys Arg Val Cys
 50 55 60
 Thr Ala Glu Leu Ser Cys Lys Gly Arg Cys Phe Glu Ser Phe Glu Arg
 65 70 75 80
 Gly Arg Glu Cys Asp Cys Asp Ala Gln Cys Lys Lys Tyr Asp Lys Cys

				85					90					95			
Cys	Pro	Asp	Tyr	Glu	Ser	Phe	Cys	Ala	Glu	Val	His	Asn	Pro	Thr	Ser		
			100					105					110				
Pro	Pro	Ser	Ser	Lys	Lys	Ala	Pro	Pro	Pro	Ser	Gly	Ala	Ser	Gln	Thr		
		115					120					125					
Ile	Lys	Ser	Thr	Thr	Lys	Arg	Ser	Pro	Lys	Pro	Pro	Asn	Lys	Lys	Lys		
	130					135					140						
Thr	Lys	Lys	Val	Ile	Glu	Ser	Glu	Glu	Ile	Thr	Glu	Glu	His	Ser	Val		
145					150					155					160		
Ser	Glu	Asn	Gln	Glu	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser		
			165					170					175				
Ser	Thr	Ile	Trp	Lys	Ile	Lys	Ser	Ser	Lys	Asn	Ser	Ala	Ala	Asn	Arg		
		180					185					190					
Glu	Leu	Gln	Lys	Lys	Leu	Lys	Val	Lys	Asp	Asn	Lys	Lys	Asn	Arg	Thr		
	195						200					205					
Lys	Lys	Lys	Pro	Thr	Pro	Lys	Pro	Pro	Val	Val	Asp	Glu	Ala	Gly	Ser		
	210					215					220						
Gly	Leu	Asp	Asn	Gly	Asp	Phe	Lys	Val	Thr	Thr	Pro	Asp	Thr	Ser	Thr		
225					230					235					240		
Thr	Gln	His	Asn	Lys	Val	Ser	Thr	Ser	Pro	Lys	Ile	Thr	Thr	Ala	Lys		
			245					250						255			
Pro	Ile	Asn	Pro	Arg	Pro	Ser	Leu	Pro	Pro	Asn	Ser	Asp	Thr	Ser	Lys		
		260					265					270					
Glu	Thr	Ser	Leu	Thr	Val	Asn	Lys	Glu	Thr	Thr	Val	Glu	Thr	Lys	Glu		
	275					280					285						
Thr	Thr	Thr	Thr	Asn	Lys	Gln	Thr	Ser	Thr	Asp	Gly	Lys	Glu	Lys	Thr		
	290				295					300							
Thr	Ser	Ala	Lys	Glu	Thr	Gln	Ser	Ile	Glu	Lys	Thr	Ser	Ala	Lys	Asp		
305					310				315						320		
Leu	Ala	Pro	Thr	Ser	Lys	Val	Leu	Ala	Lys	Pro	Thr	Pro	Lys	Ala	Glu		
			325				330							335			
Thr	Thr	Thr	Lys	Gly	Pro	Ala	Leu	Thr	Thr	Pro	Lys	Glu	Pro	Thr	Pro		
	340						345					350					
Thr	Thr	Pro	Lys	Glu	Pro	Ala	Ser	Thr	Thr	Pro	Lys	Glu	Pro	Thr	Pro		
	355					360					365						
Thr	Thr	Ile	Lys	Ser	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr		
	370				375						380						
Thr	Thr	Lys	Ser	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr		
385					390					395					400		
Thr	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr		
			405					410						415			
Thr	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Thr	Lys	Ser	Ala	Pro	Thr	Thr	Pro		
	420						425					430					
Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Lys	Pro	Ala	Pro	Thr	Thr	Pro		
	435					440					445						
Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Thr	Pro	Thr	Thr	Pro		
	450				455						460						
Lys	Glu	Pro	Ala	Pro	Thr	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys			
465					470				475					480			
Glu	Pro	Ala	Pro	Thr	Ala	Pro	Lys	Lys	Pro	Ala	Pro	Thr	Thr	Pro	Lys		
			485				490							495			
Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Thr	Lys		
	500					505					510						
Glu	Pro	Ser	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Thr	Lys		
	515					520					525						
Ser	Ala	Pro	Thr	Thr	Thr	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Thr	Lys	Ser		
	530				535				540								
Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ser	Pro	Thr	Thr	Thr	Lys	Glu	Pro		
545					550				555					560			

Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Lys	Pro
				565					570					575	
Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro
			580					585					590		
Ala	Pro	Thr	Thr	Thr	Lys	Lys	Pro	Ala	Pro	Thr	Ala	Pro	Lys	Glu	Pro
		595					600					605			
Ala	Pro	Thr	Thr	Pro	Lys	Glu	Thr	Ala	Pro	Thr	Thr	Pro	Lys	Lys	Leu
	610					615					620				
Thr	Pro	Thr	Thr	Pro	Glu	Lys	Leu	Ala	Pro	Thr	Thr	Pro	Glu	Lys	Pro
625					630					635				640	
Ala	Pro	Thr	Thr	Pro	Glu	Glu	Leu	Ala	Pro	Thr	Thr	Pro	Glu	Glu	Pro
				645					650					655	
Thr	Pro	Thr	Thr	Pro	Glu	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Ala	Ala
			660					665					670		
Ala	Pro	Asn	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro
		675					680					685			
Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Thr
	690					695					700				
Ala	Pro	Thr	Thr	Pro	Lys	Gly	Thr	Ala	Pro	Thr	Thr	Leu	Lys	Glu	Pro
705					710					715					720
Ala	Pro	Thr	Thr	Pro	Lys	Lys	Pro	Ala	Pro	Lys	Glu	Leu	Ala	Pro	Thr
				725					730					735	
Thr	Thr	Lys	Glu	Pro	Thr	Ser	Thr	Thr	Ser	Asp	Lys	Pro	Ala	Pro	Thr
			740					745					750		
Thr	Pro	Lys	Gly	Thr	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr
		755					760				765				
Thr	Pro	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Gly	Thr	Ala	Pro	Thr
	770					775					780				
Thr	Leu	Lys	Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Lys	Pro	Ala	Pro	Lys
785					790					795					800
Glu	Leu	Ala	Pro	Thr	Thr	Lys	Gly	Pro	Thr	Ser	Thr	Thr	Ser	Asp	
			805					810					815		
Lys	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Glu	Thr	Ala	Pro	Thr	Thr	Pro	Lys
			820					825					830		
Glu	Pro	Ala	Pro	Thr	Thr	Pro	Lys	Lys	Pro	Ala	Pro	Thr	Thr	Pro	Glu
		835					840					845			
Thr	Pro	Pro	Pro	Thr	Thr	Ser	Glu	Val	Ser	Thr	Pro	Thr	Thr	Thr	Lys
	850					855					860				
Glu	Pro	Thr	Thr	Ile	His	Lys	Ser	Pro	Asp	Glu	Ser	Thr	Pro	Glu	Leu
865					870					875					880
Ser	Ala	Glu	Pro	Thr	Pro	Lys	Ala	Leu	Glu	Asn	Ser	Pro	Lys	Glu	Pro
			885						890					895	
Gly	Val	Pro	Thr	Thr	Lys	Thr	Pro	Ala	Ala	Thr	Lys	Pro	Glu	Met	Thr
		900						905					910		
Thr	Thr	Ala	Lys	Asp	Lys	Thr	Thr	Glu	Arg	Asp	Leu	Arg	Thr	Thr	Pro
		915					920					925			
Glu	Thr	Thr	Thr	Ala	Ala	Pro	Lys	Met	Thr	Lys	Glu	Thr	Ala	Thr	Thr
	930					935					940				
Thr	Glu	Lys	Thr	Thr	Glu	Ser	Lys	Ile	Thr	Ala	Thr	Thr	Thr	Gln	Val
945					950					955					960
Thr	Ser	Thr	Thr	Thr	Gln	Asp	Thr	Thr	Pro	Phe	Lys	Ile	Thr	Thr	Leu
			965						970					975	
Lys	Thr	Thr	Thr	Leu	Ala	Pro	Lys	Val	Thr	Thr	Thr	Lys	Lys	Thr	Ile
			980					985					990		
Thr	Thr	Thr	Glu	Ile	Met	Asn	Lys	Pro	Glu	Glu	Thr	Ala	Lys	Pro	Lys
		995				1000						1005			
Asp	Arg	Ala	Thr	Asn	Ser	Lys	Ala	Thr	Thr	Pro	Lys	Pro	Gln	Lys	Pro
1010						1015					1020				
Thr	Lys	Ala	Pro	Lys	Lys	Pro	Thr	Ser	Thr	Lys	Lys	Pro	Lys	Thr	Met

1025 1030 1035 1040
 Pro Arg Val Arg Lys Pro Lys Thr Thr Pro Thr Pro Arg Lys Met Thr
 1045 1050 1055
 Ser Thr Met Pro Glu Leu Asn Pro Thr Ser Arg Ile Ala Glu Ala Met
 1060 1065 1070
 Leu Gln Thr Thr Thr Arg Pro Asn Gln Thr Pro Asn Ser Lys Leu Val
 1075 1080 1085
 Glu Val Asn Pro Lys Ser Glu Asp Ala Gly Gly Ala Glu Gly Glu Thr
 1090 1095 1100
 Pro His Met Leu Leu Arg Pro His Val Phe Met Pro Glu Val Thr Pro
 1105 1110 1115 1120
 Asp Met Asp Tyr Leu Pro Arg Val Pro Asn Gln Gly Ile Ile Ile Asn
 1125 1130 1135
 Pro Met Leu Ser Asp Glu Thr Asn Ile Cys Asn Gly Lys Pro Val Asp
 1140 1145 1150
 Gly Leu Thr Thr Leu Arg Asn Gly Thr Leu Val Ala Phe Arg Gly His
 1155 1160 1165
 Tyr Phe Trp Met Leu Ser Pro Phe Ser Pro Pro Ser Pro Ala Arg Arg
 1170 1175 1180
 Ile Thr Glu Val Trp Gly Ile Pro Ser Pro Ile Asp Thr Val Phe Thr
 1185 1190 1195 1200
 Arg Cys Asn Cys Glu Gly Lys Thr Phe Phe Phe Lys Asp Ser Gln Tyr
 1205 1210 1215
 Trp Arg Phe Thr Asn Asp Ile Lys Asp Ala Gly Tyr Pro Lys Pro Ile
 1220 1225 1230
 Phe Lys Gly Phe Gly Gly Leu Thr Gly Gln Ile Val Ala Ala Leu Ser
 1235 1240 1245
 Thr Ala Lys Tyr Lys Asn Trp Pro Glu Ser Val Tyr Phe Phe Lys Arg
 1250 1255 1260
 Gly Gly Ser Ile Gln Gln Tyr Ile Tyr Lys Gln Glu Pro Val Gln Lys
 1265 1270 1275 1280
 Cys Pro Gly Arg Arg Pro Ala Leu Asn Tyr Pro Val Tyr Gly Glu Thr
 1285 1290 1295
 Asp Thr Gly *
 1299

<210> 1848
 <211> 103
 <212> PRT
 <213> Homo sapiens

<400> 1848
 Met Asn Pro Ala Val Arg Gln Arg Cys Leu Leu Phe Cys Phe Gln Gln
 1 5 10 15
 Lys Leu Ile Leu Ser His Phe Phe Leu Leu Gln Val Pro Gln Trp Cys
 20 25 30
 Ala Glu Tyr Cys Leu Ser Ile His Tyr Gln His Gly Gly Val Ile Cys
 35 40 45
 Thr Gln Val His Lys Gln Thr Val Val Gln Leu Ala Leu Arg Val Ala
 50 55 60
 Asp Glu Met Asp Val Asn Ile Gly His Glu Val Gly Tyr Val Ile Pro
 65 70 75 80
 Phe Glu Asn Cys Cys Thr Asn Glu Thr Ile Leu Arg Leu Val Cys Gly
 85 90 95
 Val Gln Ser Ala Pro Cys *
 100 102

<210> 1849
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 1849
 Met Ser Arg Phe Leu Leu Pro Arg Glu Gly Cys Leu Leu Ile Val Phe
 1 5 10 15
 Met Leu Cys Glu Lys Thr Leu Pro Phe Leu Phe Thr Leu Lys Glu Tyr
 20 25 30
 Thr Phe Ile Pro Glu His Arg Thr Thr Asp Ile Asn Cys Val Asn Thr
 35 40 45
 His Glu
 50

<210> 1850
 <211> 84
 <212> PRT
 <213> Homo sapiens

<400> 1850
 Met Arg Leu His Ser Lys Gly Ser Gln Asp Pro Ser Thr Lys Val His
 1 5 10 15
 Ile Lys Ala Leu Gln Thr Val Thr Ser Phe Leu Met Leu Phe Ala Ile
 20 25 30
 Tyr Phe Leu Cys Ile Ile Thr Ser Thr Trp Asn Leu Arg Thr Gln Gln
 35 40 45
 Ser Lys Leu Val Leu Leu Leu Cys Gln Thr Val Ala Ile Met Tyr Pro
 50 55 60
 Ser Phe His Ser Phe Ile Leu Ile Met Gly Ser Arg Lys Leu Lys Gln
 65 70 75 80
 Thr Phe Leu Ser
 84

<210> 1851
 <211> 51
 <212> PRT
 <213> Homo sapiens

<400> 1851
 Met Ala Ala Cys Lys Leu Leu Lys His Leu Asn Gly Phe Ser Leu Leu
 1 5 10 15
 Leu Pro Arg Leu Glu Cys Asn Gly Val Ile Ser Val His Cys Asn Pro
 20 25 30
 Leu Pro Pro Gly Phe Lys Arg Phe Ser Cys Pro Ser Leu Leu Ser Ser
 35 40 45
 Trp Asp *
 50

<210> 1852
 <211> 54
 <212> PRT
 <213> Homo sapiens

<400> 1852
 Met Lys Thr Lys Cys Lys Pro Asn Ile Thr Phe Phe Asn Thr Ile Ile
 1 5 10 15
 Cys Phe Phe Leu Thr Phe Leu Phe Cys Ile Tyr Ile Asp Ser Leu Leu
 20 25 30
 Cys Thr Val Pro Lys Asn Pro Ala Gln Ala Val Gln Leu Asn Arg Asp
 35 40 45
 His Thr Lys Val His *
 50 53

<210> 1853
 <211> 129
 <212> PRT
 <213> Homo sapiens

<400> 1853
 Met Ala Val Val Arg Val Met Val Val Val Arg Val Thr Ala Val Val
 1 5 10 15
 Arg Val Met Val Val Val Arg Val Val Val Val Arg Val Met Val Val
 20 25 30
 Val Arg Ile Thr Ala Val Leu Arg Val Met Val Val Val Arg Ile Met
 35 40 45
 Ala Val Ile Arg Val Met Val Val Arg Val Thr Ala Ile Val Gly
 50 55 60
 Val Met Val Val Ile Arg Val Thr Ala Ile Val Ser Ile Met Val Val
 65 70 75 80
 Val Arg Val Met Val Val Val Arg Val Met Val Val Ala Arg Pro Met
 85 90 95
 Val Val Val Arg Val Met Ala Val Val Arg Val Met Ala Asp Ser Ala
 100 105 110
 Leu Arg Ala Ile Cys Ser Ser Ser Leu Asn Val Thr Phe Ser Leu Glu
 115 120 125 128
 *

<210> 1854
 <211> 190
 <212> PRT
 <213> Homo sapiens

<221> misc_feature
 <222> (1)...(190)
 <223> Xaa = any amino acid or nothing

<400> 1854


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Met Ser Cys Phe Gly Leu Leu Leu Gly Gly Leu Thr Pro Arg Val Leu
 1          5          10          15
Ser Thr Glu Glu Gln Leu Pro Pro Gly Phe Pro Ser Ile Asp Met Gly
          20          25          30
Pro Gln Leu Lys Val Val Glu Lys Ala Arg Thr Ala Thr Met Leu Cys
          35          40          45
Ala Ala Gly Gly Asn Pro Asp Pro Glu Ile Ser Trp Phe Lys Asp Phe
          50          55          60
Leu Pro Val Asp Pro Ala Thr Ser Asn Gly Arg Ile Lys Gln Leu Arg
 65          70          75          80
Ser Gly Glu Gln Arg Ala Gly Val Lys Gly Pro Cys Arg Pro Gln Asn
          85          90          95
Lys Arg Leu Val Arg Ser Gln His Ser Leu Leu Pro Trp Ala Trp Ala
          100          105          110
Pro Pro Gly Leu Ser Gly Gly Tyr Leu Val Gly Trp Ala Gly Ser Tyr
          115          120          125
Cys Arg Cys Ala Trp Leu Arg Glu Glu Ser Ser Trp Leu Ala Val Pro
          130          135          140
Leu Pro Ser Ser Asp Cys Gln Thr Pro Asp Phe Gly Pro Val Leu Pro
          145          150          155          160
Leu Pro Ala His Val Met Cys Gln Cys Gly Gly Leu Phe Lys Gly Ala
          165          170          175
Leu Trp Met Leu Thr Leu Leu Leu Pro Cys Xaa Leu Ala *
          180          185          189

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<210> 1855
 <211> 78
 <212> PRT
 <213> Homo sapiens

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<400> 1855
Met Val Val Ser Ala Trp Ile Gly Leu Glu Ala Thr Val Val Ala Ala
 1          5          10          15
Cys Leu Ala Leu Leu Gly Ser Val Val Arg Glu Thr Ser Thr Ser Ala
          20          25          30
Ser Pro Thr Pro Ala Ala Leu Arg Ala Ala Trp Thr Val Tyr Ser Ser
          35          40          45
Pro Met Thr Thr Cys Val Phe Ala Val Val Pro Leu Leu Ala Gly Thr
          50          55          60
Val Lys Pro Ser Ser Met Cys Val Pro Arg Cys Pro Ala *
          65          70          75          77

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<210> 1856
 <211> 67
 <212> PRT
 <213> Homo sapiens

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<400> 1856
Met Thr Asn Trp Met Leu Leu Leu Ala Ser Arg Ile Phe Gln Ser Leu
 1          5          10          15
Ala Ile Pro Lys Gln Leu Gly Leu Arg Arg Glu Met Pro Ser Gly Ser
          20          25          30
Pro Thr Thr Asn Ser Ser Ser Gly Cys Ile Arg Asn Leu Glu Tyr Ser

```

35 40 45
 Thr Leu Met Gly Ser Glu Met Pro Met Ala Leu Ala Ala Glu Thr Trp
 50 55 60
 Leu Leu *
 65 66

<210> 1857
 <211> 107
 <212> PRT
 <213> Homo sapiens

<400> 1857
 Met Leu Leu Met Phe Leu Leu Ala Thr Cys Leu Leu Ala Ile Ile Phe
 1 5 10 15
 Val Pro Gln Glu Met Gln Thr Leu Arg Val Val Leu Ala Thr Leu Gly
 20 25 30
 Val Gly Ala Ala Ser Leu Gly Ile Thr Cys Ser Thr Ala Gln Glu Asn
 35 40 45
 Glu Leu Ile Pro Ser Ile Ile Arg Gly Arg Ala Thr Gly Ile Thr Gly
 50 55 60
 Asn Phe Ala Asn Ile Gly Gly Ala Leu Ala Ser Leu Val Met Ile Leu
 65 70 75 80
 Ser Ile Tyr Ser Arg Pro Leu Pro Trp Ile Ile Tyr Gly Val Phe Ala
 85 90 95
 Ile Leu Ser Gly Leu Val Val Leu Leu Leu Pro
 100 105 107

<210> 1858
 <211> 134
 <212> PRT
 <213> Homo sapiens

<400> 1858
 Met Ile Pro Pro Ala Ile Phe Trp Val Leu Ile Ile Phe Gly Trp Thr
 1 5 10 15
 Leu Val Tyr Gly Phe Val Tyr Phe Thr Thr Gly Glu Thr Ile Met Asp
 20 25 30
 Lys Leu Leu Arg Val Leu Tyr Trp Ile Leu Val Lys Thr Phe Phe Arg
 35 40 45
 Glu Ile Ser Val Ser His Gln Glu Arg Ile Pro Lys Asp Lys Pro Val
 50 55 60
 Met Leu Val Cys Ala Pro His Ala Asn Gln Phe Val Asp Gly Met Val
 65 70 75 80
 Ile Ser Thr His Leu Asp Arg Lys Val Tyr Phe Val Gly Ala Ala Ser
 85 90 95
 Ser Phe Arg Lys Tyr Lys Val Val Gly Leu Phe Met Lys Leu Met Ala
 100 105 110
 Ser Ile Ile Ser Gly Glu Arg His Gln Asp Val Lys Lys Val Leu Thr
 115 120 125
 Gly Met Ala Thr Glu Lys
 130 134

<210> 1859
 <211> 82
 <212> PRT
 <213> Homo sapiens

<400> 1859
 Met Phe Tyr Val Lys Ala Glu Phe Leu Val Ser Phe Ser Cys Pro Trp
 1 5 10 15
 Leu Thr Ala Cys Ala Leu Leu Met Ser Cys Ser Trp Phe Leu Thr Leu
 20 25 30
 Thr Ile Leu Ser Val Lys Gly Gly Thr Pro Ala Gly Met Leu Asp Gln
 35 40 45
 Lys Lys Gly Lys Phe Ala Trp Phe Ser His Ser Thr Glu Thr His Gly
 50 55 60
 Asn Val Pro Leu Cys Ser Val Cys Val Asn Ala Cys Gly Cys Ile Pro
 65 70 75 80
 Asp *
 81

<210> 1860
 <211> 46
 <212> PRT
 <213> Homo sapiens

<400> 1860
 Met Pro Leu Ser Pro Leu Leu Phe His Leu Gly Pro Phe Pro Phe Lys
 1 5 10 15
 Ala Glu Ser Trp Leu Asn Phe Leu Pro Pro Pro Phe Phe Pro Leu Leu
 20 25 30
 Pro Leu Leu Phe Leu Ala Lys Ala Glu Ile Gln Trp Ala *
 35 40 45

<210> 1861
 <211> 128
 <212> PRT
 <213> Homo sapiens

<400> 1861
 Met Thr Ile Phe Phe Ser Leu Leu Val Leu Ala Ile Cys Ile Ile Leu
 1 5 10 15
 Val His Leu Leu Ile Arg Tyr Arg Leu His Phe Leu Pro Glu Ser Val
 20 25 30
 Ala Val Val Ser Leu Gly Ile Leu Met Gly Ala Val Ile Lys Ile Ile
 35 40 45
 Glu Phe Lys Lys Leu Ala Asn Trp Lys Glu Glu Glu Met Phe Arg Pro
 50 55 60
 Asn Met Phe Phe Leu Leu Leu Pro Pro Ile Ile Phe Glu Ser Gly
 65 70 75 80
 Tyr Ser Leu His Lys Gly Asn Phe Phe Gln Asn Ile Gly Ser Ile Thr
 85 90 95
 Leu Phe Ala Val Phe Gly Thr Ala Ile Ser Ala Phe Val Val Gly Gly

			100					105				110			
Gly	Ile	Tyr	Phe	Leu	Gly	Gln	Ala	His	Val	Ile	Ser	Lys	Leu	Asn	Met
		115					120					125			128

<210> 1862
 <211> 58
 <212> PRT
 <213> Homo sapiens

<400> 1862

Met	Trp	Asp	Met	Leu	Pro	Trp	Gly	Ile	Thr	Trp	Val	Leu	Leu	Thr	Thr
1				5					10					15	
Gln	Leu	His	Ser	Pro	Leu	Leu	Tyr	Val	Ile	Gly	Phe	Thr	Tyr	Trp	Val
			20					25					30		
Cys	Lys	Gly	Asp	Arg	Asp	Ser	Tyr	Leu	Glu	Glu	Asn	Ser	Arg	Glu	Thr
		35					40					45			
Ala	Ser	Val	Tyr	Thr	Ser	Val	Leu	Ser	*						
	50					55		57							

<210> 1863
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 1863

Met	Thr	Gln	Asp	Leu	Val	Leu	Thr	Val	Pro	Phe	Met	Gly	Cys	Leu	Leu
1				5					10					15	
Ile	Leu	Val	Asp	Gly	Leu	Lys	Pro	Asn	Arg	Pro	Ala	Tyr	Ile	Gln	Thr
			20					25					30		
Gly	Ser	Gln	Ala	Thr	Gln	Ala	Gly	Val	Gln	Trp	His	Asn	Tyr	Gly	Ser
		35					40					45			
Leu	*														
	49														

<210> 1864
 <211> 90
 <212> PRT
 <213> Homo sapiens

<400> 1864

Met	Val	Ala	Ser	Ala	Ala	Gln	Leu	Leu	Ser	His	Val	Cys	Leu	Gly	Gly
1				5					10					15	
Leu	Gln	Leu	Leu	His	Ser	Phe	Leu	Ser	Ser	Leu	Gln	Leu	Pro	Ala	Leu
			20					25					30		
Leu	Leu	Lys	Leu	Ala	Pro	Glu	Ala	Leu	Ala	Leu	Phe	Thr	Ser	Ile	Leu
		35					40					45			
Lys	Ser	Ala	Leu	Val	Val	His	Asp	Phe	Ser	Thr	Gln	Leu	Glu	Leu	Glu
	50					55					60				

Gly Val Glu Leu Leu Val Cys Ser Pro Leu Glu Ala Leu Gly Pro Leu
 65 70 75 80
 Leu Cys Leu Gly Glu Leu Gly Leu Gln Ala
 85 90

<210> 1865
 <211> 125
 <212> PRT
 <213> Homo sapiens

<400> 1865
 Met Arg Leu Gly Leu Leu Leu Leu Ala Arg His Trp Cys Ile Ala Gly
 1 5 10 15
 Val Phe Pro Gln Lys Phe Asp Gly Asp Ser Ala Tyr Val Gly Met Ser
 20 25 30
 Asp Gly Asn Pro Glu Leu Leu Ser Thr Ser Gln Thr Tyr Asn Gly Gln
 35 40 45
 Ser Glu Asn Asn Glu Asp Tyr Glu Ile Pro Pro Ile Thr Pro Pro Asn
 50 55 60
 Leu Pro Glu Pro Ser Leu Leu His Leu Gly Asp His Glu Ala Ser Tyr
 65 70 75 80
 His Ser Leu Cys His Gly Leu Thr Pro Asn Gly Leu Leu Pro Ala Tyr
 85 90 95
 Ser Tyr Gln Ala Met Asp Leu Pro Ala Ile Met Val Ser Asn Met Leu
 100 105 110
 Ala Gln Asp Ser His Leu Leu Ser Gly Gln Leu Pro Thr
 115 120 125

<210> 1866
 <211> 129
 <212> PRT
 <213> Homo sapiens

<400> 1866
 Met Cys Phe Leu Asn Lys Leu Leu Leu Leu Ala Ala Leu Asp Trp Leu
 1 5 10 15
 Phe Gln Ile Pro Thr Val Pro Glu Asp Leu Phe Phe Leu Glu Glu Gly
 20 25 30
 Pro Ser Tyr Ala Phe Glu Val Asp Thr Val Ala Pro Glu His Gly Leu
 35 40 45
 Asp Asn Ala Pro Val Val Asp Gln Gln Leu Leu Tyr Thr Cys Cys Pro
 50 55 60
 Tyr Ile Gly Glu Leu Arg Lys Leu Leu Ala Ser Trp Val Ser Gly Ser
 65 70 75 80
 Ser Gly Arg Ser Gly Gly Phe Met Arg Lys Ile Thr Pro Thr Thr Thr
 85 90 95
 Thr Ser Leu Gly Ala Gln Pro Ser Gln Thr Ser Gln Gly Leu Gln Ala
 100 105 110
 Gln Leu Ala Gln Ala Phe Phe His Asn Gln Pro Pro Ser Leu Arg Arg
 115 120 125
 Thr
 129

<210> 1867
 <211> 80
 <212> PRT
 <213> Homo sapiens

<400> 1867
 Met Met Arg Leu Glu Lys Phe Val Thr Trp Ser Val Met Ala Leu Gly
 1 5 10 15
 Trp Phe Val Phe Arg Gln Gln Asn Cys Trp Ala Leu Trp Ser Lys Ser
 20 25 30
 Val Leu Ile Ser Trp Ser Arg Pro Leu Thr Arg Ser Met Ser Asp Leu
 35 40 45
 Arg Arg Lys Arg Thr Ala His Glu Arg Ala Lys Glu Leu Tyr Ser Ser
 50 55 60
 Gly Glu Phe Ser Ser Gly Arg Lys Trp Gly Asp Asp Ala Pro Lys Glu
 65 70 75 80

<210> 1868
 <211> 113
 <212> PRT
 <213> Homo sapiens

<400> 1868
 Met Leu Val Trp Leu Tyr Gly Thr Ile Arg Trp Pro Ala Leu Gly Ala
 1 5 10 15
 Pro Arg Trp Trp Pro Trp Val Trp Pro Pro Gly Val Trp Ser Gly Ile
 20 25 30
 Glu Thr Pro Ser Ser Thr Pro Arg Ala Arg Ser Leu Arg Gly Thr Gly
 35 40 45
 Gly Ala Val Thr Arg Arg Thr Gly Ser Ser Phe Pro Trp Thr Thr Thr
 50 55 60
 Thr Arg Pro Ser Ser Trp Trp Thr Thr Ala His Thr Ala Ala Trp Gly
 65 70 75 80
 Ala Arg Thr Ala Ser Ala Cys Ala Trp Ser Pro Thr Ser His Ser Lys
 85 90 95
 Thr Arg Pro Trp Gln Gly Leu Glu Leu Thr Ser Leu Ala Cys Ser Ser
 100 105 110 112

*

<210> 1869
 <211> 72
 <212> PRT
 <213> Homo sapiens

<400> 1869
 Met Phe Leu Trp Val Lys Arg Leu Leu Phe Ala Ala Ser Leu Leu Ala
 1 5 10 15

Ser Asp Ser Ser Thr Ile Leu Cys Ser Arg Asp Leu Ile Leu Glu Ser
 20 25 30
 Ile Ala Leu Ile Ile Ala Phe Cys Ser Leu Arg Ile Leu Pro Phe Ser
 35 40 45
 Trp Ala Ser Ser Ser Cys Leu Cys Ile Met Phe Ser Ser Val Ser Leu
 50 55 60
 Ser Ala Arg Ser Phe Phe Ile *
 65 70 71

<210> 1870
 <211> 197
 <212> PRT
 <213> Homo sapiens

<400> 1870
 Met Arg Thr Leu Leu Thr Ile Leu Thr Val Gly Ser Leu Ala Ala His
 1 5 10 15
 Ala Pro Glu Asp Pro Ser Asp Leu Leu Gln His Val Lys Phe Gln Ser
 20 25 30
 Ser Asn Phe Glu Asn Ile Leu Thr Trp Asp Ser Gly Pro Glu Gly Thr
 35 40 45
 Pro Asp Thr Val Tyr Ser Ile Glu Tyr Lys Thr Tyr Gly Glu Arg Asp
 50 55 60
 Trp Val Ala Lys Lys Gly Cys Gln Arg Ile Thr Arg Lys Ser Cys Asn
 65 70 75 80
 Leu Thr Val Glu Thr Gly Asn Leu Thr Glu Leu Tyr Tyr Ala Arg Val
 85 90 95
 Thr Ala Val Ser Ala Gly Gly Arg Ser Ala Thr Lys Met Thr Asp Arg
 100 105 110
 Phe Ser Ser Leu Gln His Thr Thr Leu Lys Pro Pro Asp Val Thr Cys
 115 120 125
 Ile Ser Lys Val Arg Ser Ile Gln Met Ile Val His Pro Thr Pro Thr
 130 135 140
 Pro Ile Arg Ala Gly Asp Gly His Arg Leu Thr Leu Glu Asp Ile Phe
 145 150 155 160
 His Asp Leu Phe Tyr His Leu Glu Leu Gln Val Asn Arg Thr Tyr Gln
 165 170 175
 Met Val Ser Val Cys Cys Thr Leu Val Phe Leu Cys Leu Gly Ser Leu
 180 185 190
 Phe Pro Pro Asn *
 195 196

<210> 1871
 <211> 75
 <212> PRT
 <213> Homo sapiens

<400> 1871
 Met Glu Tyr Arg Leu Gln Lys Gly Ala Gly Phe His Leu Asp Leu Phe
 1 5 10 15
 Cys Val Ala Val Leu Met Leu Leu Thr Ser Ala Leu Gly Leu Pro Trp
 20 25 30
 Tyr Val Ser Ala Thr Val Ile Ser Leu Ala His Met Asp Ser Leu Arg

35 40 45
 Arg Glu Ser Arg Ala Cys Ala Pro Gly Glu Arg Pro Asn Phe Leu Gly
 50 55 60
 Ile Arg Glu Gln Arg Leu Thr Gly Leu Val Val
 65 70 75

<210> 1872
 <211> 84
 <212> PRT
 <213> Homo sapiens

<400> 1872
 Met Pro Phe Ser Thr Cys Thr Ala Leu Pro Ser Trp Ala Thr Leu Ser
 1 5 10 15
 Thr Trp Ser Trp Thr Pro Lys Val Ser Leu Ala Gly Glu Glu Arg Gly
 20 25 30
 Glu Thr Cys Gln Pro Asp Pro Phe Pro Pro His Pro Ser Cys Ser Val
 35 40 45
 Gly Arg Thr Pro Pro His Ser Ser Leu Gly Ser Pro Pro Thr Thr Leu
 50 55 60
 Phe Leu Ser Pro Leu Leu Arg Val Glu Ser Arg Gly Ala Lys Cys Val
 65 70 75 80
 Val Cys Cys *
 83

<210> 1873
 <211> 51
 <212> PRT
 <213> Homo sapiens

<400> 1873
 Met Cys Gly Ser Pro Glu Arg Leu Cys Val Arg Cys Ala Arg Val Cys
 1 5 10 15
 Ala Val Phe Met Arg Ala Leu Cys Val Val Cys Val Tyr Leu Arg Arg
 20 25 30
 Arg Ile Lys Tyr Glu Arg Phe Leu Gly Trp Glu Leu Arg Cys Lys Ile
 35 40 45
 Trp Gly *
 50

<210> 1874
 <211> 503
 <212> PRT
 <213> Homo sapiens

<400> 1874
 Met Ser Leu Val Leu Leu Ser Leu Ala Ala Leu Cys Arg Ser Ala Val
 1 5 10 15
 Pro Arg Glu Pro Thr Val Gln Cys Gly Ser Glu Thr Gly Pro Ser Pro
 20 25 30

Glu Trp Met Leu Gln His Asp Leu Ile Pro Gly Asp Leu Arg Asp Leu
 35 40 45
 Arg Val Glu Pro Val Thr Thr Ser Val Ala Thr Gly Asp Tyr Ser Ile
 50 55 60
 Leu Met Asn Val Ser Trp Val Leu Arg Ala Asp Ala Ser Ile Arg Leu
 65 70 75 80
 Leu Lys Ala Thr Lys Ile Cys Val Thr Gly Lys Ser Asn Phe Gln Ser
 85 90 95
 Tyr Ser Cys Val Arg Cys Asn Tyr Thr Glu Ala Phe Gln Thr Gln Thr
 100 105 110
 Arg Pro Ser Gly Gly Lys Trp Thr Phe Ser Tyr Ile Gly Phe Pro Val
 115 120 125
 Glu Leu Asn Thr Val Tyr Phe Ile Gly Ala His Asn Ile Pro Asn Ala
 130 135 140
 Asn Met Asn Glu Asp Gly Pro Ser Met Ser Val Asn Phe Thr Ser Pro
 145 150 155 160
 Gly Cys Leu Asp His Ile Met Lys Tyr Lys Lys Lys Cys Val Lys Ala
 165 170 175
 Gly Ser Leu Trp Asp Pro Asn Ile Thr Ala Cys Lys Lys Asn Glu Glu
 180 185 190
 Thr Val Glu Val Asn Phe Thr Thr Thr Pro Leu Gly Asn Arg Tyr Met
 195 200 205
 Ala Leu Ile Gln His Ser Thr Ile Ile Gly Phe Ser Gln Val Phe Glu
 210 215 220
 Pro His Gln Lys Lys Gln Thr Arg Ala Ser Val Val Ile Pro Val Thr
 225 230 235 240
 Gly Asp Ser Glu Gly Ala Thr Val Gln Leu Thr Pro Tyr Phe Pro Thr
 245 250 255
 Cys Gly Ser Asp Cys Ile Arg His Lys Gly Thr Val Val Leu Cys Pro
 260 265 270
 Gln Thr Gly Val Pro Phe Pro Leu Asp Asn Asn Lys Ser Lys Pro Gly
 275 280 285
 Gly Trp Leu Pro Leu Leu Leu Leu Ser Leu Leu Val Ala Thr Trp Val
 290 295 300
 Leu Val Ala Gly Ile Tyr Leu Met Trp Arg His Glu Arg Ile Lys Lys
 305 310 315 320
 Thr Ser Phe Ser Thr Thr Thr Leu Leu Pro Pro Ile Lys Val Leu Val
 325 330 335
 Val Tyr Pro Ser Glu Ile Cys Phe His His Thr Ile Cys Tyr Phe Thr
 340 345 350
 Glu Phe Leu Gln Asn His Cys Arg Ser Glu Val Ile Leu Glu Lys Trp
 355 360 365
 Gln Lys Lys Lys Ile Ala Glu Met Gly Pro Val Gln Trp Leu Ala Thr
 370 375 380
 Gln Lys Lys Ala Ala Asp Lys Val Val Phe Leu Leu Ser Asn Asp Val
 385 390 395 400
 Asn Ser Val Cys Asp Gly Thr Cys Gly Lys Ser Glu Gly Ser Pro Ser
 405 410 415
 Glu Asn Ser Gln Asp Leu Phe Pro Leu Ala Phe Asn Leu Phe Cys Ser
 420 425 430
 Asp Leu Arg Ser Gln Ile His Leu His Lys Tyr Val Val Val Tyr Phe
 435 440 445
 Arg Glu Ile Asp Thr Lys Asp Asp Tyr Asn Ala Leu Ser Val Cys Pro
 450 455 460
 Lys Tyr His Leu Met Lys Asp Ala Thr Ala Phe Cys Ala Glu Leu Leu
 465 470 475 480
 His Val Lys Gln Gln Val Ser Ala Gly Lys Arg Ser Gln Ala Cys His
 485 490 495
 Asp Gly Cys Cys Ser Leu *

500 502

<210> 1875
 <211> 158
 <212> PRT
 <213> Homo sapiens

 <221> misc_feature
 <222> (1)...(158)
 <223> Xaa = any amino acid or nothing

<400> 1875
 Met Xaa Pro Pro Thr Arg Pro Arg Thr Arg Gly Val Gly Ile Phe Tyr
 1 5 10 15
 Phe Val Ile Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 20 25 30
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 35 40 45
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 50 55 60
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 65 70 75 80
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 85 90 95
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 100 105 110
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 115 120 125
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 130 135 140
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr
 145 150 155 158

<210> 1876
 <211> 106
 <212> PRT
 <213> Homo sapiens

<400> 1876
 Met Gly Asn Arg Ala Val Ile Ile Ala Arg Gln Leu Ser Ser Val His
 1 5 10 15
 Thr Leu Ile Cys Asn Phe Phe Trp Leu Leu Leu Arg Thr Thr Gly Gly
 20 25 30
 Asp Leu Asp Ser Leu Lys Cys Ser Tyr Glu Ser Ile Gly Leu Asn Ser
 35 40 45
 Ile Ser Thr His Glu Phe Ile Cys Thr Trp Gln Arg Arg Leu Asn Phe
 50 55 60
 Ser Phe Val Met Ser Phe Lys Pro Leu Phe Arg Ala Ser Pro His Ser
 65 70 75 80
 Tyr Leu Leu Ile Ile Gly Ser Gln Leu His Glu Thr Phe Asn Leu Gly
 85 90 95
 Ser Ile Ser Ser Glu Glu Lys Cys Ser *
 100 105

<210> 1877
 <211> 241
 <212> PRT
 <213> Homo sapiens

 <221> misc_feature
 <222> (1)...(241)
 <223> Xaa = any amino acid or nothing

<400> 1877
 Met Leu Trp Ala Leu Trp Pro Arg Trp Leu Ala Asp Lys Met Leu Pro
 1 5 10 15
 Leu Leu Gly Ala Val Leu Leu Gln Lys Arg Glu Lys Arg Gly Pro Leu
 20 25 30
 Trp Arg His Trp Arg Arg Glu Thr Tyr Pro Tyr Tyr Asp Leu Gln Val
 35 40 45
 Lys Val Leu Arg Ala Thr Asn Ile Arg Gly Thr Asp Leu Leu Ser Lys
 50 55 60
 Ala Asp Cys Tyr Val Gln Leu Trp Leu Pro Thr Ala Ser Pro Ser Pro
 65 70 75 80
 Ala Gln Thr Arg Ile Val Ala Asn Cys Ser Asp Pro Glu Trp Asn Glu
 85 90 95
 Thr Phe His Tyr Gln Ile His Gly Ala Val Lys Asn Val Leu Glu Leu
 100 105 110
 Thr Leu Tyr Asp Lys Asp Ile Leu Gly Ser Asp Gln Leu Ser Leu Leu
 115 120 125
 Leu Phe Asp Leu Arg Ser Leu Lys Cys Gly Gln Pro His Lys His Thr
 130 135 140
 Phe Pro Leu Asn His Gln Asp Ser Gln Glu Leu Gln Val Glu Phe Val
 145 150 155 160
 Leu Glu Lys Ser Gln Glu Pro Ala Ser Glu Val Ile Thr Asn Gly Val
 165 170 175
 Leu Gly Ala His Pro Trp Leu Arg Met Lys Gly Met Ile Leu Gly Glu
 180 185 190
 Gly Arg Ala Pro Arg Gln Gln His Gly Gln Ser Trp Glu Gly Gly Val
 195 200 205
 Gly Pro Ser Pro Leu Ser Xaa Xaa Xaa Asn Thr Gly Gly Lys Ile Val
 210 215 220
 Gly Phe Trp Glu Glu Met Ala Asn Gly Thr Gly Ala Pro Pro Arg Pro
 225 230 235 240
 Pro
 241

<210> 1878
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 1878
 Met Leu Leu Met Leu Leu Phe Arg Cys Cys Ser Ser Lys Asp Leu Trp
 1 5 10 15
 Pro Val Leu Ile Ala His Leu Val Pro Gln Gly Gly Gln Glu Gly Asn

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<210> 1879
<211> 56
<212> PRT
<213> Homo sapiens
```

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<210> 1880
<211> 161
<212> PRT
<213> Homo sapiens

<221> misc_feature
<222> (1)...(161)
<223> Xaa = any amino acid or nothing
```

1029

<210> 1881
 <211> 130
 <212> PRT
 <213> Homo sapiens

<400> 1881
 Met Gly Ile Tyr Gln Met Tyr Leu Cys Phe Leu Leu Ala Val Leu Leu
 1 5 10 15
 Gln Leu Tyr Val Ala Thr Glu Ala Ile Leu Ile Ala Leu Val Gly Ala
 20 25 30
 Thr Pro Ser Tyr His Trp Asp Leu Ala Glu Leu Leu Pro Asn Gln Ser
 35 40 45
 His Gly Asn Gln Ser Ala Gly Glu Asp Gln Ala Phe Gly Asp Trp Leu
 50 55 60
 Leu Thr Ala Asn Gly Ser Glu Ile His Lys His Val His Phe Ser Ser
 65 70 75 80
 Ser Phe Thr Ser Ile Ala Ser Glu Trp Phe Leu Ile Ala Asn Arg Ser
 85 90 95
 Tyr Lys Val Ser Ala Ala Ser Ser Phe Phe Phe Ser Gly Val Phe Val
 100 105 110
 Gly Val Ile Ser Phe Gly Gln Leu Ser Asp Arg Phe Gly Arg Lys Lys
 115 120 125
 Val Tyr
 130

<210> 1882
 <211> 108
 <212> PRT
 <213> Homo sapiens

<400> 1882
 Met Leu Trp Phe Ser Gly Val Gly Ala Leu Ala Glu Arg Tyr Cys Arg
 1 5 10 15
 Arg Ser Pro Gly Ile Thr Cys Cys Val Leu Leu Leu Leu Asn Cys Ser
 20 25 30
 Gly Val Pro Met Ser Leu Ala Ser Ser Phe Leu Thr Gly Ser Val Ala
 35 40 45
 Lys Cys Glu Asn Glu Gly Glu Val Leu Gln Ile Pro Phe Ile Thr Asp
 50 55 60
 Asn Pro Cys Ile Met Cys Val Cys Leu Asn Lys Glu Val Thr Cys Lys
 65 70 75 80
 Arg Glu Lys Cys Pro Val Leu Ser Arg Asp Cys Ala Leu Ala Ile Lys
 85 90 95
 Gln Arg Gly Ala Cys Cys Glu Gln Cys Lys Gly Cys
 100 105 108

<210> 1883
 <211> 88
 <212> PRT
 <213> Homo sapiens

<400> 1883
 Met Leu Phe Tyr Leu Val Ser Val Cys Leu Cys Val Ala Val Ile Val
 1 5 10 15
 Ala Phe Gln Leu Thr Ala Phe Thr Phe Arg Lys Asn Leu Ala Ala Thr
 20 25 30
 Ala Leu Leu Leu Ser Leu Phe Gly Tyr Ala Thr Leu Pro Trp Met Tyr
 35 40 45
 Leu Met Ser Arg Ile Phe Ser Ser Ser Asp Val Ala Phe Ile Ser Tyr
 50 55 60
 Val Ser Leu Asn Phe Ile Phe Gly Leu Cys Thr Met Leu Ile Thr Ile
 65 70 75 80
 Met Pro Arg Leu Leu Ala Ile Ile
 85 88

<210> 1884
 <211> 116
 <212> PRT
 <213> Homo sapiens

<400> 1884
 Met Cys Trp Ala Arg Cys Trp Thr Arg Trp Asn Thr Cys Thr Ile Trp
 1 5 10 15
 Thr Ser Ser Thr Asp Pro Phe Arg Lys Cys Trp Met Ala Pro Glu Ala
 20 25 30
 Leu Asn Phe Ser Phe Ser His Lys Ser Asp Ile Trp Ser Leu Gly Cys
 35 40 45
 Ile Ile Leu Asp Met Thr Ser Cys Ser Phe Met Asp Gly Thr Glu Ala
 50 55 60
 Met His Leu Arg Lys Ser Leu Arg Gln Ser Pro Gly Ser Leu Lys Ala
 65 70 75 80
 Val Leu Lys Thr Met Glu Glu Lys Gln Ile Pro Asp Val Glu Thr Phe
 85 90 95
 Arg Asn Leu Leu Pro Leu Met Leu Gln Ile Asp Pro Ser Asp Arg Ile
 100 105 110
 Thr Ile Lys *
 115

<210> 1885
 <211> 115
 <212> PRT
 <213> Homo sapiens

<400> 1885
 Met Ser Glu Arg Val Glu Arg Asn Trp Ser Thr Gly Gly Trp Leu Leu
 1 5 10 15
 Ala Leu Cys Leu Ala Trp Leu Trp Thr His Leu Thr Leu Ala Ala Leu
 20 25 30
 Gln Pro Pro Thr Ala Thr Val Leu Val Gln Gln Gly Thr Cys Glu Val
 35 40 45
 Ile Ala Ala His Arg Cys Cys Asn Arg Asn Arg Ile Glu Glu Arg Ser
 50 55 60

Gln Thr Val Lys Cys Ser Cys Phe Ser Gly Gln Val Ala Gly Thr Thr
 65 70 75 80
 Arg Ala Lys Pro Ser Cys Val Asp Asp Leu Leu Ala Ala His Cys
 85 90 95
 Ala Arg Arg Asp Pro Arg Ala Ala Leu Arg Leu Leu Leu Pro Gln Pro
 100 105 110
 Pro Ser Ser
 115

<210> 1886
 <211> 357
 <212> PRT
 <213> Homo sapiens

<400> 1886
 Met Ile Leu Ser Leu Leu Phe Ser Leu Gly Gly Pro Leu Gly Trp Gly
 1 5 10 15
 Leu Leu Gly Ala Trp Ala Gln Ala Ser Ser Thr Ser Leu Ser Asp Leu
 20 25 30
 Gln Ser Ser Arg Thr Pro Gly Val Trp Lys Ala Glu Ala Glu Asp Thr
 35 40 45
 Gly Lys Asp Pro Val Gly Arg Asn Trp Cys Pro Tyr Pro Met Ser Lys
 50 55 60
 Leu Val Thr Leu Leu Ala Leu Cys Lys Thr Glu Lys Phe Leu Ile His
 65 70 75 80
 Ser Gln Gln Pro Cys Pro Gln Gly Ala Pro Asp Cys Gln Lys Val Lys
 85 90 95
 Val Met Tyr Arg Met Ala His Lys Pro Val Tyr Gln Val Lys Gln Lys
 100 105 110
 Val Leu Thr Ser Leu Ala Trp Arg Cys Cys Pro Gly Tyr Thr Gly Pro
 115 120 125
 Asn Cys Glu His His Asp Ser Met Ala Ile Pro Glu Pro Ala Asp Pro
 130 135 140
 Gly Asp Ser His Gln Glu Pro Gln Asp Gly Pro Val Ser Phe Lys Pro
 145 150 155 160
 Gly His Leu Ala Ala Val Ile Asn Glu Val Glu Val Gln Gln Glu Gln
 165 170 175
 Gln Glu His Leu Leu Gly Asp Leu Gln Asn Asp Val His Arg Val Ala
 180 185 190
 Asp Ser Leu Pro Gly Leu Trp Lys Ala Leu Pro Gly Asn Leu Thr Ala
 195 200 205
 Ala Val Met Glu Ala Asn Gln Thr Gly His Glu Phe Pro Asp Arg Ser
 210 215 220
 Leu Glu Gln Val Leu Leu Pro His Val Asp Thr Phe Leu Gln Val His
 225 230 235 240
 Phe Ser Pro Ile Trp Arg Ser Phe Asn Gln Ser Leu His Ser Leu Thr
 245 250 255
 Gln Ala Ile Arg Asn Leu Ser Leu Asp Val Glu Ala Asn Arg Gln Ala
 260 265 270
 Ile Ser Arg Val Gln Asp Ser Ala Val Ala Arg Ala Asp Phe Gln Glu
 275 280 285
 Leu Gly Ala Lys Phe Glu Ala Lys Val Gln Glu Asn Thr Gln Arg Val
 290 295 300
 Gly Gln Leu Arg Gln Asp Val Glu Asp Arg Leu His Ala Gln His Phe
 305 310 315 320
 Thr Leu His Arg Ser Ile Ser Glu Leu Gln Ala Asp Val Asp Thr Lys

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<210> 1887
<211> 86
<212> PRT
<213> Homo sapiens
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<210> 1888
<211> 48
<212> PRT
<213> Homo sapiens
```

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<210> 1889
<211> 79
<212> PRT
<213> Homo sapiens
```

1033

Asn Gln Thr Phe Leu Cys Leu Leu Ser Thr Thr Ala Phe Gly Gln Gly
 50 55 60
 Val Phe Phe Ile Thr Phe Leu Glu Gly Gln Glu Thr Gly Ile His
 65 70 75 79

<210> 1890
 <211> 251
 <212> PRT
 <213> Homo sapiens

<400> 1890
 Met Asn Val Ile Tyr Phe Pro Leu His Leu Phe Val Val Tyr Ser Arg
 1 5 10 15
 Ala Tyr Thr Ser Leu Val Leu Val Gly Cys Thr Asn Leu Cys Ala Val
 20 25 30
 Leu Phe Ala Arg Cys Leu Asp Asp His Leu Val Ser Leu Arg Met Ser
 35 40 45
 Gly Ser Arg Lys Glu Phe Asp Val Lys Gln Ile Leu Lys Ile Arg Trp
 50 55 60
 Arg Trp Phe Gly His Gln Ala Ser Ser Pro Asn Ser Thr Val Asp Ser
 65 70 75 80
 Gln Gln Gly Glu Phe Trp Asn Arg Gly Gln Thr Gly Ala Asn Gly Gly
 85 90 95
 Arg Lys Phe Leu Asp Pro Cys Ser Leu Gln Leu Pro Leu Ala Ser Ile
 100 105 110
 Gly Tyr Arg Arg Ser Ser Gln Leu Asp Phe Gln Asn Ser Pro Ser Trp
 115 120 125
 Pro Met Ala Ser Thr Ser Glu Val Pro Ala Phe Glu Phe Thr Ala Glu
 130 135 140
 Asp Cys Gly Gly Ala His Trp Leu Asp Arg Pro Glu Val Asp Asp Gly
 145 150 155 160
 Thr Ser Glu Glu Glu Asn Glu Ser Asp Ser Ser Ser Cys Arg Thr Ser
 165 170 175
 Asn Ser Ser Gln Thr Leu Ser Ser Cys His Thr Met Glu Pro Cys Thr
 180 185 190
 Ser Asp Glu Phe Phe Gln Ala Leu Asn His Ala Glu Gln Thr Phe Lys
 195 200 205
 Lys Met Glu Asn Tyr Leu Arg His Lys Gln Leu Cys Asp Val Ile Leu
 210 215 220
 Val Ala Gly Asp Arg Arg Ile Pro Ala His Arg Leu Val Leu Ser Ser
 225 230 235 240
 Val Ser Asp Tyr Phe Ala Gly Met Phe Thr Asn
 245 250 251

<210> 1891
 <211> 117
 <212> PRT
 <213> Homo sapiens

<221> misc_feature
 <222> (1)...(117)
 <223> Xaa = any amino acid or nothing

<400> 1891

```

Met Leu Ile Asp Val Phe Phe Phe Leu Phe Leu Phe Ala Xaa Trp Met
 1          5          10          15
Val Ala Phe Gly Val Ala Arg Gln Gly Ile Leu Arg Gln Asn Glu Gln
          20          25          30
Arg Trp Arg Trp Ile Phe Arg Ser Val Ile Tyr Glu Pro Tyr Leu Ala
          35          40          45
Met Phe Gly Gln Val Pro Ser Asp Val Asp Gly Thr Thr Tyr Asp Phe
          50          55          60
Ala His Cys Thr Phe Thr Gly Asn Glu Ser Lys Pro Leu Cys Val Glu
          65          70          75          80
Leu Asp Glu His Asn Leu Pro Arg Phe Pro Glu Trp Ile Thr Ile Pro
          85          90          95
Leu Val Cys Ile Tyr Met Leu Ser Thr Asn Ile Leu Leu Val Asn Leu
          100          105          110
Leu Val Ala Met Phe
          115          117

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<210> 1892

<211> 103

<212> PRT

<213> Homo sapiens

<400> 1892

```

Met Leu Cys His Pro His Val His His His Leu Val Cys Leu Leu Ala
 1          5          10          15
Thr Leu Thr Phe Ser Leu Asn Ala Ser Cys Ala Glu Gln Thr Phe His
          20          25          30
Ser Gln Gln Ser Asn Gly Glu Phe Met Ala Thr Leu Pro Ser Ile Ser
          35          40          45
Lys Gln Phe Gly Val Ile Val Trp Lys Pro Gln Arg Lys Asp Val Ile
          50          55          60
Arg Leu Pro Val Ala Leu Ser Phe Ser Ser Gly Ala Arg Leu Ala Phe
          65          70          75          80
Thr Cys Leu Arg Lys Ile Ser Gly Phe Arg Ala Leu Ile Trp Gly Glu
          85          90          95
Asp Lys Gly Trp Asp Leu *
          100          102

```

<210> 1893

<211> 77

<212> PRT

<213> Homo sapiens

<221> misc_feature

<222> (1)...(77)

<223> Xaa = any amino acid or nothing

<400> 1893

```

Met Leu Ala Ala Gly Val Thr Ser Ala Ala Gly Leu Ala Leu Ala Phe
 1          5          10          15
Ser Gly Asp Tyr Leu Lys Ala Phe Ile Asp Val Pro Thr Val Pro Ala
          20          25          30

```

Ala Leu Val Phe Leu Leu Leu Val Gly Leu Leu Asn Ala Arg Gly Ile
 35 40 45
 Lys Glu Ser Met Arg Ala Xaa Val Val Met Thr Val Val Glu Val Thr
 50 55 60
 Gly Leu Val Leu Val Val Val Leu Ala Leu Val Pro Gly
 65 70 75 77

<210> 1894
 <211> 46
 <212> PRT
 <213> Homo sapiens

<400> 1894
 Met Trp Ala Ala Ser Trp Cys Leu Ser Leu Trp Cys Cys Trp Val Trp
 1 5 10 15
 Ser Gly Thr Ser Glu Ser Ile Thr Ala Asn Ser Ser Gln His Leu Pro
 20 25 30
 Leu Ser Pro Trp Trp Glu Ser Pro Ser Ser Ser Ala Ser *
 35 40 45

<210> 1895
 <211> 162
 <212> PRT
 <213> Homo sapiens

<400> 1895
 Met Thr Ala Trp Arg Arg Phe Gln Ser Leu Leu Leu Leu Leu Gly Leu
 1 5 10 15
 Leu Val Leu Cys Ala Arg Leu Leu Thr Ala Ala Lys Gly Gln Asn Cys
 20 25 30
 Gly Gly Leu Val Gln Gly Pro Asn Gly Thr Ile Glu Ser Pro Gly Phe
 35 40 45
 Pro His Gly Tyr Pro Asn Tyr Ala Asn Cys Thr Trp Ile Ile Ile Thr
 50 55 60
 Gly Glu Arg Asn Arg Ile Gln Leu Ser Phe His Thr Phe Ala Leu Glu
 65 70 75 80
 Glu Asp Phe Asp Ile Leu Ser Val Tyr Asp Gly Gln Pro Gln Gln Gly
 85 90 95
 Asn Leu Lys Val Arg Leu Ser Gly Phe Gln Leu Pro Ser Ser Ile Val
 100 105 110
 Ser Thr Gly Ser Ile Leu Thr Leu Trp Phe Thr Thr Asp Phe Ala Val
 115 120 125
 Ser Ala Gln Gly Phe Lys Ala Leu Tyr Glu Gly Arg Arg Leu Val Val
 130 135 140
 Phe Cys Thr Cys Ile His Cys Pro Asn Asp Leu Ile His Ala Thr Leu
 145 150 155 160
 Asp *
 161

<210> 1896
 <211> 60

<212> PRT
 <213> Homo sapiens

<400> 1896
 Met Leu Ser Leu Pro Cys Gly Trp Leu Cys Thr Ala Ile Gly Leu Pro
 1 5 10 15
 Thr Met Phe Gly Tyr Ile Ile Cys Gly Val Leu Leu Gly Pro Ser Gly
 20 25 30
 Leu Asn Ser Ile Lys Val Arg Thr Lys Leu Asp Cys Phe Gly Ile Cys
 35 40 45
 Leu Thr Glu Tyr Lys Lys Arg Ile His Glu Asp *
 50 55 59

<210> 1897
 <211> 49
 <212> PRT
 <213> Homo sapiens

<400> 1897
 Met Leu Ile Val Gln Phe Ile Phe Glu Leu Val Ser Ser Ile Leu Val
 1 5 10 15
 Ser Asn Val Lys Asp Met Leu Asp Phe Glu Ser Gly Phe Cys Ser Lys
 20 25 30
 Ile Leu Ser Tyr Phe Phe Ser Ser Pro Arg Tyr Arg Leu Pro Phe Leu
 35 40 45 48
 *

<210> 1898
 <211> 52
 <212> PRT
 <213> Homo sapiens

<400> 1898
 Met Thr Trp Ala Gly Leu Phe Leu Phe Leu Arg Val Gly Ser Pro Asn
 1 5 10 15
 Arg Lys Trp Ala Ala Ser Gly Gly Ser Gly Gly Asp Gly Val Asp Gly
 20 25 30
 Glu Asp Trp Ser Leu Ala Arg Ser His Pro Gln Ser Pro Leu Leu Leu
 35 40 45
 Leu Leu Leu *
 50 51

<210> 1899
 <211> 112
 <212> PRT
 <213> Homo sapiens

<400> 1899

```

Met Ala Ile Pro Ser Val Val Ile Ser Gly Leu Ala Val Leu Leu Val
 1          5          10          15
Ala Met Ala Leu Pro Ser Leu Ser Gly Ser Glu Ala Ile Lys Ser Met
          20          25          30
Thr Ile Pro Gly Leu Val Val Pro Thr Val Val Arg Phe Met Ala Val
          35          40          45
Pro Gly Leu Ile Val Pro Ala Val Ala Lys Phe Thr Val Leu Pro Asp
          50          55          60
Leu Thr Val Pro Thr Glu Asp Lys Ser Leu Ala Val Pro Ser Leu Ile
          65          70          75          80
Ser Arg Ala Gly Asn Ser Val Pro Val Ser Ser Trp Asp Val Phe Gly
          85          90          95
Val Ala Lys Leu Ile Ala Lys Leu Gly Leu Leu Ala Ala Ile Val Ala
          100          105          110          112

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<210> 1900
 <211> 128
 <212> PRT
 <213> Homo sapiens

```

<400> 1900
Met Arg Val Tyr Gly Thr Cys Thr Leu Val Leu Met Ala Leu Val Val
 1          5          10          15
Phe Val Gly Val Lys Tyr Val Asn Lys Leu Ala Leu Val Phe Leu Ala
          20          25          30
Cys Val Val Leu Ser Ile Leu Ala Ile Tyr Ala Gly Val Ile Lys Ser
          35          40          45
Ala Phe Asp Pro Pro Asp Ile Pro Val Cys Leu Leu Gly Asn Arg Thr
          50          55          60
Leu Ser Arg Arg Ser Phe Asp Ala Cys Val Lys Ala Tyr Gly Ile His
          65          70          75          80
Asn Asn Ser Ala Thr Ser Ala Leu Trp Gly Leu Phe Cys Asn Gly Ser
          85          90          95
Gln Pro Ser Ala Cys Asp Glu Tyr Phe Ile Gln Asn Asn Val Thr
          100          105          110
Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly Val Phe Leu Glu Asn
          115          120          125          128

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<210> 1901
 <211> 68
 <212> PRT
 <213> Homo sapiens

```

<400> 1901
Met Glu Leu Leu Lys Leu Leu Leu Thr Cys Phe Ser Glu Ala Met Tyr
 1          5          10          15
Leu Pro Pro Ala Pro Glu Ser Gly Ser Thr Asn Pro Trp Val Gln Phe
          20          25          30
Phe Cys Ser Thr Glu Asn Arg His Ala Leu Pro Leu Phe Thr Ser Leu

```

35 40 45
 Leu Asn Thr Val Cys Ala Tyr Asp Pro Val Glu Tyr Gly Ile Pro Tyr
 50 55 60
 Asn His Leu Tyr
 65 68

<210> 1902
 <211> 127
 <212> PRT
 <213> Homo sapiens

<400> 1902
 Met Tyr Phe Ser Ser Leu Phe Pro Tyr Val Val Leu Ala Cys Phe Leu
 1 5 10 15
 Val Arg Gly Leu Leu Leu Arg Gly Ala Val Asp Gly Ile Leu His Met
 20 25 30
 Phe Thr Pro Lys Leu Asp Lys Met Leu Asp Pro Gln Val Trp Arg Glu
 35 40 45
 Ala Ala Thr Gln Val Phe Ser Ala Leu Gly Leu Gly Phe Gly Gly Val
 50 55 60
 Ile Ala Phe Ser Ser Tyr Asn Lys Gln Asp Asn Asn Cys His Phe Asp
 65 70 75 80
 Ala Ala Leu Val Ser Phe Ile Asn Phe Phe Thr Ser Val Leu Ala Thr
 85 90 95
 Leu Val Val Phe Ala Val Leu Gly Phe Lys Ala Asn Ile Met Asn Glu
 100 105 110
 Lys Cys Val Val Glu Asn Ala Glu Lys Ile Leu Gly Tyr Arg Val
 115 120 125 127

<210> 1903
 <211> 83
 <212> PRT
 <213> Homo sapiens

<400> 1903
 Met Trp Lys Phe Val Ser Pro Leu Cys Met Ala Val Leu Thr Thr Ala
 1 5 10 15
 Ser Ile Ile Gln Leu Gly Val Thr Pro Pro Gly Tyr Ser Ala Trp Ile
 20 25 30
 Lys Glu Glu Ala Ala Glu Arg Tyr Leu Tyr Phe Pro Asn Trp Ala Met
 35 40 45
 Ala Pro Leu Ile Thr Leu Ile Val Val Ala Thr Leu Pro Ile Pro Val
 50 55 60
 Val Phe Val Leu Arg His Phe His Leu Ile Cys Asp Gly Ser Asn Thr
 65 70 75 80
 Pro Cys Ile
 83

<210> 1904
 <211> 129
 <212> PRT

<213> Homo sapiens

<400> 1904

```

Met Lys Met Phe Val Ala His Gly Phe Tyr Ala Ala Lys Phe Val Val
 1          5          10          15
Ala Ile Gly Ser Val Ala Gly Leu Thr Val Ser Leu Leu Gly Ser Leu
          20          25          30
Phe Pro Met Pro Arg Val Ile Tyr Ala Met Ala Gly Asp Gly Leu Leu
          35          40          45
Phe Arg Phe Leu Ala His Val Ser Ser Tyr Thr Glu Thr Pro Val Val
          50          55          60
Ala Cys Ile Val Ser Gly Phe Leu Ala Ala Leu Leu Ala Leu Leu Val
          65          70          75          80
Ser Leu Arg Asp Leu Ile Glu Met Met Ser Ile Gly Thr Leu Leu Ala
          85          90          95
Tyr Thr Leu Val Ser Val Cys Val Leu Leu Leu Arg His His Pro Glu
          100          105          110
Ser Asp Ile Asp Gly Phe Val Lys Phe Leu Ser Glu Glu His Thr Cys
          115          120          125
Ser
129

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<210> 1905

<211> 93

<212> PRT

<213> Homo sapiens

<400> 1905

```

Met Gly Leu Leu Met Met Ile Leu Gly Gln Ile Phe Leu Asn Gly Asn
 1          5          10          15
Gln Ala Lys Glu Ala Glu Ile Trp Glu Met Leu Trp Arg Met Gly Val
          20          25          30
Gln Arg Glu Arg Arg Leu Ser Ile Phe Gly Asn Pro Lys Arg Leu Leu
          35          40          45
Ser Val Glu Phe Val Trp Gln Arg Tyr Leu Asp Tyr Arg Pro Val Thr
          50          55          60
Asp Cys Lys Pro Val Glu Tyr Glu Phe Phe Trp Gly Pro Arg Ser His
          65          70          75          80
Leu Glu Thr Thr Lys Met Lys Ile Leu Lys Phe Met Ala
          85          90          93

```

<210> 1906

<211> 66

<212> PRT

<213> Homo sapiens

<400> 1906

```

Met Thr Ile Gly Phe Leu Phe Pro Met Leu Ser Ile Ala Tyr Leu Ile
 1          5          10          15
Ser Pro Arg Ser Asn Leu Gly Leu Phe Ile Lys Lys Pro Phe Ile Lys
          20          25          30
Phe Ile Cys His Thr Ala Ser Tyr Leu Thr Phe Leu Ser Met Leu Leu

```

35 40 45
 Leu Ala Ser Gln His Ile Val Arg Thr Asp Leu His Val Gln Gly Pro
 50 55 60
 Cys Ile
 65 66

<210> 1907
 <211> 105
 <212> PRT
 <213> Homo sapiens

<400> 1907
 Met Leu Gln Leu Gly Pro Phe Leu Tyr Trp Thr Phe Leu Ala Ala Phe
 1 5 10 15
 Glu Gly Thr Val Phe Phe Phe Gly Thr Tyr Phe Leu Phe Gln Thr Ala
 20 25 30
 Ser Leu Glu Asn Gly Lys Val Tyr Gly Asn Trp Thr Phe Gly Thr
 35 40 45
 Ile Val Phe Thr Val Leu Val Phe Thr Val Thr Leu Lys Leu Ala Leu
 50 55 60
 Asp Thr Arg Phe Trp Thr Trp Ile Asn His Phe Val Ile Trp Gly Ser
 65 70 75 80
 Leu Ala Phe Tyr Val Phe Phe Ser Phe Phe Trp Gly Gly Ile Ile Trp
 85 90 95
 Pro Phe Leu Lys Gln Gln Arg Met Ala
 100 105

<210> 1908
 <211> 46
 <212> PRT
 <213> Homo sapiens

<400> 1908
 Met Gly Phe Leu Val Leu Lys Gln Pro Met Leu Val Ala Lys Val Phe
 1 5 10 15
 Pro Thr Leu Ala Gly Val Glu Ile Ile Leu Phe Thr Leu Lys Gly Phe
 20 25 30
 Pro Ile Leu Gly Ile Pro Val Gln Leu Pro Pro Thr Val *
 35 40 45

<210> 1909
 <211> 139
 <212> PRT
 <213> Homo sapiens

<400> 1909
 Met Ile Gln Ala Leu Gly Gly Phe Phe Thr Tyr Phe Val Ile Leu Ala
 1 5 10 15
 Glu Asn Gly Phe Leu Pro Ile His Leu Leu Gly Leu Arg Glu Asp Trp
 20 25 30


```

Asp Asp Arg Trp Ile Asn Asp Val Glu Asp Ser Tyr Gly Gln Gln Trp
   35           40           45
Thr Tyr Glu Gln Arg Lys Ile Val Glu Phe Thr Cys His Thr Ala Phe
   50           55           60
Phe Val Ser Ile Val Gly Val Gln Trp Ala Asp Leu Val Ile Cys Lys
   65           70           75           80
Thr Arg Arg Asn Ser Val Phe Gln Pro Gly Met Lys Asn Lys Ile Leu
           85           90           95
Ile Phe Gly Leu Phe Glu Glu Thr Ala Leu Ala Ala Phe Leu Ser Tyr
           100          105          110
Cys Pro Gly Met Gly Val Ala Leu Lys Met Tyr Pro Leu Lys Pro Thr
           115          120          125
Trp Arg Val Cys Ala Phe Pro Tyr Ser Leu Leu
   130           135           139

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<210> 1910
<211> 104
<212> PRT
<213> Homo sapiens

```

```

<400> 1910
Met Glu Gly Trp Phe Ala Val Leu Ser Thr Ala Asn Asp Val Leu Gly
  1           5           10           15
Ala Pro Trp Asn Trp Leu Tyr Phe Ile Pro Leu Leu Ile Ile Gly Ala
           20           25           30
Phe Phe Val Pro Thr Leu Val Leu Gly Val Leu Ser Gly Asp Phe Ala
           35           40           45
Lys Glu Arg Glu Arg Val Glu Thr Arg Arg Ala Phe Met Lys Leu Arg
           50           55           60
Arg Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Arg Val Trp Ile
           65           70           75           80
Ala Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asn Leu Tyr Pro Ser
           85           90           95
His Ala Arg Pro Val Asn Pro *
           100          103

```

```

<210> 1911
<211> 116
<212> PRT
<213> Homo sapiens

```

```

<400> 1911
Met Ala Val Ala Val Leu Leu Cys Gly Cys Ile Val Ala Thr Val Ser
  1           5           10           15
Phe Phe Trp Glu Glu Ser Leu Thr Gln His Val Ala Gly Leu Leu Phe
           20           25           30
Leu Met Thr Gly Ile Phe Cys Thr Ile Ser Leu Cys Thr Tyr Ala Ala
           35           40           45
Ser Ile Ser Tyr Asp Leu Asn Arg Leu Pro Lys Leu Ile Tyr Ser Leu
           50           55           60
Pro Ala Asp Val Glu His Gly Tyr Ser Trp Ser Ile Phe Cys Ala Trp
           65           70           75           80
Cys Ser Leu Gly Phe Ile Val Ala Ala Gly Gly Leu Cys Ile Ala Tyr

```

85 90 95
 Pro Phe Ile Ser Arg Thr Lys Ile Ala Gln Leu Lys Ser Gly Arg Asp
 100 105 110
 Ser Thr Val *
 115

<210> 1912
 <211> 105
 <212> PRT
 <213> Homo sapiens

<400> 1912
 Met Gln Leu Lys Thr Pro Ser Gly Gln Val Leu Ser Phe Cys Ile Leu
 1 5 10 15
 Gln Leu Phe Pro Phe Thr Ser Glu Ser Lys Arg Met Gly Val Ile Val
 20 25 30
 Arg Asp Glu Ser Thr Ala Glu Ile Thr Phe Tyr Met Lys Gly Ala Asp
 35 40 45
 Val Ala Met Ser Pro Ile Val Gln Tyr Asn Asp Trp Leu Glu Glu Glu
 50 55 60
 Cys Gly Asn Met Ala Arg Glu Gly Leu Arg Thr Leu Val Val Ala Lys
 65 70 75 80
 Lys Ala Leu Thr Glu Glu Gln Tyr Gln Asp Phe Glu Ser Arg Tyr Thr
 85 90 95
 Gln Ala Lys Leu Ser Met His Thr Lys
 100 105

<210> 1913
 <211> 141
 <212> PRT
 <213> Homo sapiens

<400> 1913
 Met Leu Val Tyr Val Trp Ser Arg Arg Ser Pro Arg Val Arg Val Asn
 1 5 10 15
 Phe Phe Gly Leu Leu Thr Phe Gln Ala Pro Phe Leu Pro Trp Ala Leu
 20 25 30
 Met Gly Phe Ser Leu Leu Leu Gly Asn Ser Ile Leu Val Asp Leu Leu
 35 40 45
 Gly Ile Ala Val Gly His Ile Tyr Tyr Phe Leu Glu Asp Val Phe Pro
 50 55 60
 Asn Gln Pro Gly Arg Gln Glu Ala Pro Ala Asp Pro Trp Ala Phe Leu
 65 70 75 80
 Lys Leu Leu Leu Gly Cys Pro Cys Arg Arg Pro Gln Leu Thr Cys Pro
 85 90 95
 Ser Leu Arg Asn Ser Gln Asp Pro Ile Cys His Pro Arg Ser Ser Asp
 100 105 110
 Pro His Pro Gly Ala Arg Pro Lys Arg Leu Leu Ala Ala Ser Ile Leu
 115 120 125
 Pro Met Thr Pro Thr Trp Gly Arg Lys Asn Pro Ser *
 130 135 140

<210> 1914
 <211> 556
 <212> PRT
 <213> Homo sapiens

<400> 1914
 Met Lys Lys Val Leu Leu Leu Leu Trp Lys Thr Val Leu Cys Thr Leu
 1 5 10 15
 Gly Gly Phe Glu Glu Leu Gln Ser Met Lys Ala Glu Lys Arg Ser Ile
 20 25 30
 Leu Gly Leu Pro Pro Leu Pro Glu Asp Ser Ile Lys Val Ile Arg Asn
 35 40 45
 Met Arg Ala Ala Ser Pro Pro Ala Ser Ala Ser Asp Leu Ile Glu Gln
 50 55 60
 Gln Gln Lys Arg Gly Arg Arg Glu His Lys Ala Leu Ile Lys Gln Asp
 65 70 75 80
 Asn Leu Asp Ala Phe Asn Glu Arg Asp Pro Tyr Lys Ala Asp Asp Ser
 85 90 95
 Arg Glu Glu Glu Glu Glu Asn Asp Asp Asp Asn Ser Leu Glu Gly Glu
 100 105 110
 Thr Phe Pro Leu Glu Arg Asp Glu Val Met Pro Pro Pro Leu Gln His
 115 120 125
 Pro Gln Thr Asp Arg Leu Thr Cys Pro Lys Gly Leu Pro Trp Ala Pro
 130 135 140
 Lys Val Arg Glu Lys Asp Ile Glu Met Phe Leu Glu Ser Ser Arg Ser
 145 150 155 160
 Lys Phe Ile Gly Tyr Thr Leu Gly Ser Asp Thr Asn Thr Val Val Gly
 165 170 175
 Leu Pro Arg Pro Ile His Glu Ser Ile Lys Thr Leu Lys Gln His Lys
 180 185 190
 Tyr Thr Ser Ile Ala Glu Val Gln Ala Gln Met Glu Glu Glu Tyr Leu
 195 200 205
 Arg Ser Pro Leu Ser Gly Gly Glu Glu Glu Val Glu Gln Val Pro Ala
 210 215 220
 Glu Thr Leu Tyr Gln Gly Leu Leu Pro Ser Leu Pro Gln Tyr Met Ile
 225 230 235 240
 Ala Leu Leu Lys Ile Leu Leu Ala Ala Ala Pro Thr Ser Lys Ala Lys
 245 250 255
 Thr Asp Ser Ile Asn Ile Leu Ala Asp Val Leu Pro Glu Glu Met Pro
 260 265 270
 Thr Thr Val Leu Gln Ser Met Lys Leu Gly Val Asp Val Asn Arg His
 275 280 285
 Lys Glu Val Ile Val Lys Ala Ile Ser Ala Val Leu Leu Leu Leu Leu
 290 295 300
 Lys His Phe Lys Leu Asn His Val Tyr Gln Phe Glu Tyr Met Ala Gln
 305 310 315 320
 His Leu Val Phe Ala Asn Cys Ile Pro Leu Ile Leu Lys Phe Phe Asn
 325 330 335
 Gln Asn Ile Met Ser Tyr Ile Thr Ala Lys Asn Ser Ile Ser Val Leu
 340 345 350
 Asp Tyr Pro His Cys Val Val His Glu Leu Pro Glu Leu Thr Ala Glu
 355 360 365
 Ser Leu Glu Ala Gly Asp Ser Asn Gln Phe Cys Trp Arg Asn Leu Phe
 370 375 380
 Ser Cys Ile Asn Leu Leu Arg Ile Leu Asn Lys Leu Thr Lys Trp Lys
 385 390 395 400
 His Ser Arg Thr Met Met Leu Val Val Phe Lys Ser Ala Pro Ile Leu

				405				410					415			
Lys	Arg	Ala	Leu	Lys	Val	Lys	Gln	Ala	Met	Met	Gln	Leu	Tyr	Val	Leu	
			420					425					430			
Lys	Leu	Leu	Lys	Val	Gln	Thr	Lys	Tyr	Leu	Gly	Arg	Gln	Trp	Arg	Lys	
		435					440					445				
Ser	Asn	Met	Lys	Thr	Met	Ser	Ala	Ile	Tyr	Gln	Lys	Val	Arg	His	Arg	
	450					455					460					
Leu	Asn	Asp	Asp	Trp	Ala	Tyr	Gly	Asn	Asp	Leu	Asp	Ala	Arg	Pro	Trp	
465					470					475					480	
Asp	Phe	Gln	Ala	Glu	Glu	Cys	Ala	Leu	Arg	Ala	Asn	Ile	Glu	Arg	Phe	
				485					490					495		
Asn	Ala	Arg	Arg	Tyr	Asp	Arg	Ala	His	Ser	Asn	Pro	Asp	Phe	Leu	Pro	
			500					505					510			
Val	Asp	Asn	Cys	Leu	Gln	Ser	Val	Leu	Gly	Gln	Arg	Val	Asp	Leu	Pro	
		515					520					525				
Glu	Asp	Phe	Gln	Met	Asn	Tyr	Asp	Leu	Trp	Leu	Glu	Arg	Glu	Val	Phe	
	530					535					540					
Ser	Lys	Pro	Ile	Ser	Trp	Glu	Glu	Leu	Leu	Gln	*					
545					550					555						

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<210> 1915
<211> 212
<212> PRT
<213> Homo sapiens
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[illegible]

<210> 1916
 <211> 172
 <212> PRT
 <213> Homo sapiens

<400> 1916
 Met Cys Thr Pro Val Arg Val Ser Ile Val Cys Val Met Gly Ala Val
 1 5 10 15
 Gly Ala Val Trp Thr Ala Pro Leu Pro Leu Pro Trp Ala Pro Thr Pro
 20 25 30
 Ser Ile His Leu Arg Glu Glu Gly Ala Ala Phe Pro Phe Cys Gly Val
 35 40 45
 Cys Val Leu Arg Pro Arg Arg Ser Lys Trp Arg Ser Trp Asp Val Asn
 50 55 60
 Leu Gly Pro Arg Arg Arg Gly Leu Leu Gly Cys Gly Pro Cys Pro Ser
 65 70 75 80
 Gly Lys Pro Arg Val His Leu Gln Arg Thr Arg Ser Gly Ala Gly Ala
 85 90 95
 Glu Ala Gly Gly Leu Pro Thr Arg Gly Ser Met Arg Gly Cys Pro Phe
 100 105 110
 Leu Gly Ser Ser Ala Ala Lys Cys Ser Leu Leu Leu Arg Pro Pro Ser
 115 120 125
 Arg Gly Glu Ala Ser Pro Trp Leu Pro Glu Phe Met Thr His Pro Val
 130 135 140
 His His Gln Gln Leu Ala Cys Gly Ser Gly Trp Leu Gly Thr Lys His
 145 150 155 160
 Pro Gly Gly Thr Cys Ala Leu Gly Ser Thr Met *
 165 170 171

<210> 1917
 <211> 72
 <212> PRT
 <213> Homo sapiens

<400> 1917
 Met Leu Arg Trp Gly Phe Leu Glu Ile Leu Phe Leu Arg Ser Trp Phe
 1 5 10 15
 His Ser Trp Ile Cys Leu Leu Pro Thr Pro Gln Leu Pro Pro Asn Gly
 20 25 30
 Ala Ser Ala Gly Ser Gln Asp Glu Gly Ser Arg Arg Arg Leu Ser Leu
 35 40 45
 Glu Val Arg Gly Leu Met Asn His Val Pro Asn Leu Cys Val Ala Phe
 50 55 60
 Leu Ser Ile Val Ser Ile Ser *
 65 70 71

<210> 1918
 <211> 88
 <212> PRT
 <213> Homo sapiens

<400> 1918

```

Met Thr Ser Leu Met Phe Leu Trp Arg Ala Leu Leu Glu Thr Ile Ser
 1          5          10          15
Thr Asn Met Thr Phe Ser Leu Pro Leu Ala Ala Val Val Arg Ala Trp
          20          25          30
Met Lys Pro Thr Gly Ser Gly Met Phe Leu Tyr Gln Tyr Leu Pro Val
          35          40          45
Val Lys Ser Ser Gln Ala Val Phe Pro Val Val Ile Glu Ile Ser Ser
          50          55          60
Ile Ser Gly Ser Ile Leu Pro Lys Phe Pro Met Leu Ser Leu Met Ser
          65          70          75          80
Leu His Thr Gly Ser Ile Ile *
          85          87

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<210> 1919

<211> 54

<212> PRT

<213> Homo sapiens

<400> 1919

```

Met Leu Gly Pro Phe Ser Ser Leu Phe Leu Leu Leu Trp Ser Phe Thr
 1          5          10          15
Arg Phe Cys Ile His Phe Tyr Leu Ala Pro Ser His His Cys Leu Thr
          20          25          30
Ala Ala Leu Leu Pro Phe Ser Leu His Pro Leu Tyr Ser Ser Leu Ser
          35          40          45
Leu Ser Arg Ser Gln *
          50          53

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<210> 1920

<211> 114

<212> PRT

<213> Homo sapiens

<400> 1920

```

Met His Pro Pro Leu Thr Pro Pro Thr Pro Leu Cys Leu Trp Leu Arg
 1          5          10          15
Leu Leu Lys Ala Gln Ile Leu Ser Tyr Pro Val Pro Arg Phe Glu Thr
          20          25          30
His Ser Leu Ile Ser Arg Cys Ser Gln Val Pro Pro Thr Phe Leu Trp
          35          40          45
Asp Ile Lys Lys Gly Val Arg Gly Gln Arg Glu Pro Ser Gly Pro Leu
          50          55          60
Leu Pro Tyr Thr Leu His Cys Pro Phe Ser Pro His Gln Asn Ala Gln
          65          70          75          80
Arg Arg Cys Asp Asp Ala Thr Glu Asp Tyr Ala Thr Trp Ser Asn Arg
          85          90          95
Ser Gly Gln His Asp Gln Leu Ser Arg Gly Cys Leu Leu Pro Phe Leu
          100          105          110
Leu *
113

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<210> 1921
 <211> 139
 <212> PRT
 <213> Homo sapiens

<400> 1921
 Met Val Tyr Leu Tyr Ile Tyr Leu Asp Leu Phe Gln Phe Leu Ile Thr
 1 5 10 15
 Val Leu Gln Gly Phe Leu Phe Val Phe Glu Met Glu Phe His Ser Cys
 20 25 30
 Arg Pro Gly Gln Ser Ala Met Met Gln Ser Gln Leu Ala Ala Thr Ser
 35 40 45
 Ala Ser Arg Val Gln Val Ile Leu Val Val Ser Ala Pro Gln Glu Ala
 50 55 60
 Gly Thr Thr Gly Ala Arg His His Val Gln Leu Ile Phe Val Phe Leu
 65 70 75 80
 Leu Glu Met Gly Phe Cys His Val Gly Gln Ala Gly Leu Glu Leu Leu
 85 90 95
 Asn Ser Gly Asp Pro Pro Thr Ser Ala Ser Gln Ser Ala Gly Ile Arg
 100 105 110
 Gly Val Asn His Cys Ala Pro Pro Ile Asn Ser Leu Leu Thr Phe Gln
 115 120 125
 Ser Phe Ile His Leu Glu Cys Ile Val Ile *
 130 135 138

<210> 1922
 <211> 52
 <212> PRT
 <213> Homo sapiens

<400> 1922
 Met Trp Leu Ser Phe Pro Lys Leu Phe Ile Pro Leu Ser Ile Phe Leu
 1 5 10 15
 Val Phe Leu Leu Met Ala Asn Ser Phe Arg Ile Phe Lys Ser Lys Asn
 20 25 30
 Ile Phe Ile Ser Leu Leu Phe Trp Asn Asp Thr Phe Ala Gly Cys Ile
 35 40 45
 Phe Leu Thr *
 50 51

<210> 1923
 <211> 71
 <212> PRT
 <213> Homo sapiens

<400> 1923
 Met Val Ser His Cys Ile Phe Cys Asn Leu Leu Phe Ser Leu Leu Thr
 1 5 10 15
 Val Phe Leu Arg Leu Leu His Val Asp Thr Cys His Leu Phe Ile Arg
 20 25 30
 Phe Asn Cys Cys Lys Ile Phe Phe Cys Gln Asp Ile Leu Gln Leu Ile

35 40 45
 Tyr Leu Leu Phe Phe Leu Trp Thr Phe Lys Leu Phe Ser Gly Phe Thr
 50 55 60
 Leu Lys Ile Ile Gln Gln *
 65 70

<210> 1924
 <211> 187
 <212> PRT
 <213> Homo sapiens

<400> 1924
 Met Leu Phe Ile Gln Tyr Leu Leu Pro Cys Leu Leu Leu Ser Ala Glu
 1 5 10 15
 Leu Ser Gly Thr Phe Phe Leu Tyr Asn Thr Cys His Leu His Val Pro
 20 25 30
 Cys Cys His Ser Leu Val Pro Thr Gly Pro Pro Ser Leu Ser Ser His
 35 40 45
 Phe Gln Ser Arg Gly Leu Cys Ala Pro Cys Ala Ser Ile Ala Asp Ser
 50 55 60
 Gly Ile Ala Asp Ser Gly Gly Asn Asn Leu Asn Phe Val Gly Ala Gly
 65 70 75 80
 Gly Val Ala Ser Gly His Leu Leu Ser Pro Leu Leu Gly Pro Gln Ser
 85 90 95
 Ser Pro Cys Pro His Cys Pro Arg Gly Gly Arg Leu Pro Ser Gln Pro
 100 105 110
 Leu Pro Leu Cys Ser Ala Arg Ser Trp Ala Gln Glu Ala Leu Arg Leu
 115 120 125
 Pro Ser Ser Ala Gln Leu Cys Pro Cys His Pro Leu Pro Arg Gly Leu
 130 135 140
 Gly Pro Val Ser Pro Ser Gly Leu Leu Ala Asn Ile Ser Tyr Arg His
 145 150 155 160
 Asn Trp Leu Leu Gly Ser Trp Pro Gly Trp Leu Ile Trp Gly Gly Lys
 165 170 175
 Asn Arg Gly Gly Leu Asn Ser Phe Leu Ala *
 180 185 186

<210> 1925
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 1925
 Met Leu Ser Phe Leu Val Val Phe Gln Leu Val Leu Leu Arg Phe Ser
 1 5 10 15
 Gly Arg His Ser His His Gln Leu Ile Thr Ile Thr Phe Pro Leu Phe
 20 25 30
 Gln Trp Leu Tyr Phe Phe Phe Phe Met Phe Phe Cys Thr Gly Trp Lys
 35 40 45
 Phe *
 49

<210> 1926
 <211> 47
 <212> PRT
 <213> Homo sapiens

<400> 1926
 Met Gly Arg Tyr Arg Cys Ala Ser Leu Leu Phe Cys Phe Leu Leu Leu
 1 5 10 15
 Phe Phe Phe Phe Trp Leu Trp Val Arg Asp Ile Phe Lys Leu Ala Gln
 20 25 30
 Lys Gly Arg Gly Trp Ser Leu Asp Pro His Val Ser Ile Thr *
 35 40 45 46

<210> 1927
 <211> 149
 <212> PRT
 <213> Homo sapiens

<400> 1927
 Met Ala Thr Gly Leu Leu Ala Phe Leu Gly Leu Ala Ala Gly Gly Gln
 1 5 10 15
 Thr Leu Cys Pro Ala Gly Glu Leu Pro Gly His Ala Arg Ala Gln Ala
 20 25 30
 Ser Gly Ala Pro Gly Ser Val Leu Ile Ala Val Pro Gly Arg Arg Arg
 35 40 45
 Val His Thr Cys Gly Pro Gly Pro Ala Ala Pro Ser Thr Arg Gly Glu
 50 55 60
 Cys Pro Pro Pro Ala Leu Gly His Thr Arg Pro Ala Arg Pro Arg Pro
 65 70 75 80
 Val Leu Leu Arg Pro Ser Cys Ser Pro Gly Ala Arg Gly Ala Gly Thr
 85 90 95
 Trp Cys Cys Ala Pro Ala Thr Gly His Ser Ala Pro Arg Gly Cys Pro
 100 105 110
 Pro Ala Arg Ala Ala Pro Thr Gly Ser Ala Thr Pro Ala Pro Pro Pro
 115 120 125
 Ala Ala Cys Ala Ala Phe His Ser Ala Trp Ser Val Pro Pro Ala Gly
 130 135 140
 Arg Gln Gln Gly *
 145 148

<210> 1928
 <211> 446
 <212> PRT
 <213> Homo sapiens

<400> 1928
 Met Ser Leu Trp Asn Gln Leu Val Val Pro Val Leu Phe Met Val Phe
 1 5 10 15
 Trp Leu Val Leu Phe Ala Leu Gln Ile Tyr Ser Tyr Phe Ser Thr Arg
 20 25 30
 Asp Gln Pro Ala Ser Arg Glu Arg Leu Leu Phe Leu Phe Leu Thr Ser

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<210> 1929
<211> 120
<212> PRT
<213> Homo sapiens
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<400> 1929

```

Met Val Leu Pro Leu Pro Trp Leu Ser Arg Tyr His Phe Leu Arg Leu
 1              5              10              15
Leu Leu Pro Ser Trp Ser Leu Ala Pro Gln Gly Ser His Gly Cys Cys
              20              25              30
Ser Gln Asn Pro Lys Ala Ser Met Glu Glu Gln Thr Asn Ser Arg Gly
              35              40              45
Asn Gly Lys Met Thr Ser Pro Pro Arg Gly Pro Gly Thr His Arg Thr
              50              55              60
Ala Glu Leu Ala Arg Ala Glu Glu Leu Leu Glu Gln Gln Leu Glu Leu
 65              70              75              80
Tyr Gln Ala Leu Leu Glu Gly Gln Glu Gly Ala Trp Glu Ala Gln Ala
              85              90              95
Leu Val Leu Lys Ile His Lys Leu Lys Glu Gln Met Arg Arg His Gln
              100              105              110
Glu Ser Leu Gly Gly Gly Ala *
              115              119

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<210> 1930

<211> 122

<212> PRT

<213> Homo sapiens

<400> 1930

```

Met Thr Trp Leu Val Leu Leu Gly Thr Leu Leu Cys Met Leu Arg Val
 1              5              10              15
Gly Leu Gly Thr Pro Asp Ser Glu Gly Phe Pro Pro Arg Ala Leu His
              20              25              30
Asn Cys Pro Tyr Lys Cys Ile Cys Ala Ala Asp Leu Leu Ser Cys Thr
              35              40              45
Gly Leu Gly Leu Gln Asp Val Pro Ala Glu Leu Pro Ala Gly Thr Ala
              50              55              60
Asp Leu Asp Leu Ser His Asn Ala Leu Gln Arg Met Arg Pro Gly Trp
 65              70              75              80
Leu Ala Pro Leu Phe Gln Leu Arg Ala Leu His Leu Asp His Asn Glu
              85              90              95
Leu His Ala Leu Asp Arg Gly Val Phe Val Asn Ala Ser Gly Leu Arg
              100              105              110
Leu Leu Asp Leu Ser Ser Asn Ala Glu Phe
              115              120              122

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<210> 1931

<211> 73

<212> PRT

<213> Homo sapiens

<400> 1931

```

Met Ala Arg Ala Pro Ser Val Ala Leu Ala Gln Leu Trp Leu Ile Cys
 1              5              10              15
Leu Cys Pro Glu Ser Leu Ala Ser Phe Val Gln Ala Val Pro Trp Lys
              20              25              30
Val Leu Gln Pro Ser Ser Asn Arg Ser Thr Asp Cys Ser Pro His Met

```

35 40 45
 Arg Pro Thr Cys Glu Thr Leu Gly Ser Arg Lys Ala Gln Asp Leu Gly
 50 55 60
 Ala Gly Tyr Tyr Val Ser Val His *
 65 70 72

<210> 1932
 <211> 68
 <212> PRT
 <213> Homo sapiens

<400> 1932
 Met Lys Thr Val Phe Thr Lys Lys Leu Thr Ala Ala Leu Leu Ile Thr
 1 5 10 15
 Val Pro Asn Cys Lys Gln Pro Arg Cys Pro Ser Met Gly Glu Trp Leu
 20 25 30
 Asn Lys Leu Gln Tyr Ile His Thr Met Lys Tyr Tyr Ser Thr Ile Lys
 35 40 45
 Val Asn Tyr Trp Pro Gly Thr Val Ala His Thr Cys Asn Pro Ser Thr
 50 55 60
 Leu Gly Gly *
 65 67

<210> 1933
 <211> 47
 <212> PRT
 <213> Homo sapiens

<400> 1933
 Met Gln Gln Arg Lys Met Arg Leu Val Trp Arg Ser Tyr Trp Ser Met
 1 5 10 15
 Val Gln Thr Pro Met Leu Trp Met Ala Thr Glu Ile Pro His Phe Thr
 20 25 30
 Gly Gln Pro Leu Arg Thr Met Leu Ser Val Cys Gly Leu Ser *
 35 40 45 46

<210> 1934
 <211> 86
 <212> PRT
 <213> Homo sapiens

<400> 1934
 Met Cys Trp Ser Pro Leu Thr Gly Trp Ala Leu Ser Ser Ser Arg Cys
 1 5 10 15
 Arg Leu Ser Trp Pro Leu Thr Ser Phe Gly Ser Thr Ala Ser Cys Arg
 20 25 30
 Pro Thr Thr Gly Trp Arg Gly Leu Met Trp Leu Gln Ala Leu Ser Ser
 35 40 45
 Ser Gly Tyr Pro Ser Leu Cys Thr Leu Tyr Ser Glu Leu Leu Val Gln
 50 55 60

Ala Val His Arg Lys Ala Gly Asp Thr Glu Val Gln Gln Ser Leu Leu
 65 70 75 80
 Leu Leu Leu Lys Lys *
 85

<210> 1935
 <211> 76
 <212> PRT
 <213> Homo sapiens

<400> 1935
 Met Gly Glu Val Pro Lys Ala His Arg Leu Lys Leu Arg Trp Leu Phe
 1 5 10 15
 Pro Val Ser Leu Cys Arg Ala Pro Leu Leu Ser Thr Ala His Leu Ala
 20 25 30
 Leu Leu Leu Pro Cys Cys Leu Leu Cys Ser Ser Cys Tyr Tyr Phe Pro
 35 40 45
 Phe Leu Ser Leu Leu Pro Pro Trp Pro Asn Leu Phe His Arg Asn Ile
 50 55 60
 Thr Gly Pro Ala Arg His Ser Gly Ser Pro Leu *
 65 70 75

<210> 1936
 <211> 49
 <212> PRT
 <213> Homo sapiens

<400> 1936
 Met Leu Leu Gln Thr Phe Val Thr Thr Cys Ile Ser Tyr Phe Tyr Trp
 1 5 10 15
 His Phe Asn Phe Val Trp Ile Gln Phe Asn Val Cys Arg Val Leu Ser
 20 25 30
 Phe Gln Pro Glu Arg Leu Thr Leu Ala Phe Leu Ile Gly Gln Val Tyr
 35 40 45 48
 *

<210> 1937
 <211> 76
 <212> PRT
 <213> Homo sapiens

<400> 1937
 Met Lys Gly Arg Phe Leu Phe Pro Leu Arg Leu Leu Leu Trp Met Cys
 1 5 10 15
 Leu His Leu Gln Arg Gln Ala Ser Glu Leu His Gln Pro Ser Met Pro
 20 25 30
 Gly Cys Pro Leu Thr Ser Ser Ser Arg Leu Phe Asp Asn Ala Gln Met
 35 40 45
 His Gln Phe Leu Asn Ile His Val Lys Phe Glu Asn Cys Thr Phe Gly

50 55 60
 Glu Ile Lys Phe Tyr Ile Gln Leu Ala Lys Lys Lys
 65 70 75 76

<210> 1938
 <211> 191
 <212> PRT
 <213> Homo sapiens

<400> 1938
 Met Ala Asp Glu Lys Thr Phe Arg Ile Gly Phe Ile Val Leu Gly Leu
 1 5 10 15
 Phe Leu Leu Ala Leu Gly Thr Phe Leu Met Ser His Asp Arg Pro Gln
 20 25 30
 Val Tyr Gly Thr Phe Tyr Ala Met Gly Ser Val Met Val Ile Gly Gly
 35 40 45
 Ile Ile Trp Ser Met Cys Gln Cys Tyr Pro Lys Ile Thr Phe Val Pro
 50 55 60
 Ala Asp Ser Asp Phe Gln Gly Ile Leu Ser Pro Lys Ala Met Gly Leu
 65 70 75 80
 Leu Glu Asn Gly Leu Ala Ala Glu Met Lys Ser Pro Ser Pro Gln Pro
 85 90 95
 Pro Tyr Val Arg Leu Trp Glu Glu Ala Ala Tyr Asp Gln Ser Leu Pro
 100 105 110
 Asp Phe Ser His Ile Gln Met Lys Val Met Ser Tyr Ser Glu Asp His
 115 120 125
 Arg Ser Leu Leu Ala Pro Glu Met Gly Gln Pro Lys Leu Gly Thr Ser
 130 135 140
 Asp Gly Gly Glu Gly Gly Pro Gly Asp Val Gln Ala Trp Met Glu Ala
 145 150 155 160
 Ala Val Val Ile His Lys Gly Leu Asn Glu Ser Glu Gly Glu Arg Arg
 165 170 175
 Leu Thr Gln Ser Trp Pro Gly Pro Leu Ala Cys Pro Gln Gly Pro
 180 185 190 191

<210> 1939
 <211> 82
 <212> PRT
 <213> Homo sapiens

<400> 1939
 Met Val Arg Ser Ile Arg Leu Leu Phe Phe Phe Gly Trp Gly Phe Ser
 1 5 10 15
 Thr Thr Gln Gln Pro Ser Leu Cys Gln Asn Ser Leu Met Phe Pro Asp
 20 25 30
 Gly Ser Ser Phe Thr Pro Leu Ser Glu Ala Pro Lys Gly Ser Phe Pro
 35 40 45
 Gly Val Trp Thr Thr His Ser Ser Leu Ser Pro Asp Thr Pro Pro Pro
 50 55 60
 Trp Val His Ser Ala Gly Trp Val Gln Thr Lys Trp Asn Pro Trp Asn
 65 70 75 80
 Leu *
 81

<210> 1940
 <211> 101
 <212> PRT
 <213> Homo sapiens

<400> 1940
 Met His Val Cys Leu His Ile Trp Gly Leu Gly Val Cys Val Phe Met
 1 5 10 15
 His Met Met Cys Ala Cys Val Gly Val Tyr Val Cys Pro Phe Met Arg
 20 25 30
 Tyr Gly Met Gln Ile Cys Ala Cys Ile His Ala His Ser Cys Ser Ala
 35 40 45
 Cys Val Cys Ser Cys Ile Trp Cys Met His Gly Cys Ser Tyr Leu Trp
 50 55 60
 Gly Thr Gly Ile Met His Val Cys Ser Ser Val Trp Gly Val Gly Ile
 65 70 75 80
 Pro Gly Leu Trp Pro Glu Ala Pro Leu Gln Asp Thr Ala Pro Cys Arg
 85 90 95
 Leu Pro Arg Gly *
 100

<210> 1941
 <211> 88
 <212> PRT
 <213> Homo sapiens

<400> 1941
 Met Lys Ala Ser Val Leu Ser Pro Ser Phe Leu Leu Val Leu Trp Ser
 1 5 10 15
 Cys Phe Leu Ser Cys Ser Cys Met Glu Pro Gln Ser Gly Phe Pro Arg
 20 25 30
 Pro Ser Cys Phe Thr Val Gly Phe Leu Leu Arg Arg Arg Thr Lys Thr
 35 40 45
 Arg Arg Gln Lys Ala Thr Asn Thr Val Lys Met Arg Thr Thr Lys Ile
 50 55 60
 Leu Lys Ile Lys Ile Asp Lys Arg Arg Trp Pro Thr Arg Met Ser Ser
 65 70 75 80
 Lys Trp Asn Pro Lys Glu Trp *
 85 87

<210> 1942
 <211> 46
 <212> PRT
 <213> Homo sapiens

<400> 1942
 Met Arg Ser Met Gly Phe Arg Ala Gln Gly Leu Pro Phe Gly Ile Arg
 1 5 10 15
 Gln Thr Trp Leu Arg Ile Leu Asp Leu Leu Leu Thr Cys Thr Leu Pro

		20						25				30
Phe	Gly	Ser	Arg	Asp	Val	Lys	Trp	Arg	Cys	Cys	His	Leu
		35					40					*
												45

<210> 1943
 <211> 155
 <212> PRT
 <213> Homo sapiens

<400> 1943

Met	Phe	Thr	Leu	Leu	Val	Leu	Leu	Ser	Gln	Leu	Pro	Thr	Val	Thr	Leu
1				5					10					15	
Gly	Phe	Pro	His	Cys	Ala	Arg	Gly	Pro	Lys	Ala	Ser	Lys	His	Ala	Gly
			20					25					30		
Glu	Glu	Val	Phe	Thr	Ser	Lys	Glu	Glu	Ala	Asn	Phe	Phe	Ile	His	Arg
		35					40					45			
Arg	Leu	Leu	Tyr	Asn	Arg	Phe	Asp	Leu	Glu	Leu	Phe	Thr	Pro	Gly	Asn
	50					55					60				
Leu	Glu	Arg	Glu	Cys	Asn	Glu	Glu	Leu	Cys	Asn	Tyr	Glu	Glu	Ala	Arg
65				70					75					80	
Glu	Ile	Phe	Val	Asp	Glu	Asp	Lys	Thr	Ile	Ala	Phe	Trp	Gln	Glu	Tyr
			85					90					95		
Ser	Ala	Lys	Gly	Pro	Thr	Thr	Lys	Ser	Asp	Gly	Asn	Arg	Glu	Lys	Ile
		100					105					110			
Asp	Val	Met	Gly	Leu	Leu	Thr	Gly	Leu	Ile	Ala	Ala	Gly	Val	Phe	Leu
	115						120					125			
Val	Ile	Phe	Gly	Leu	Leu	Gly	Tyr	Tyr	Leu	Cys	Ile	Thr	Lys	Cys	Asn
	130					135					140				
Arg	Leu	Gln	His	Pro	Cys	Ser	Ser	Ala	Val	Tyr					
145					150					155					

<210> 1944
 <211> 61
 <212> PRT
 <213> Homo sapiens

<400> 1944

Met	Cys	Gln	His	Val	Gln	Leu	Ile	Phe	Val	Phe	Phe	Val	Glu	Thr	Gly
1				5					10					15	
Phe	His	His	Val	Ala	Gln	Ala	Gly	Leu	Lys	Leu	Leu	Gly	Ser	Ser	Asp
			20					25					30		
Leu	Pro	Thr	Ser	Ala	Ser	Gln	Ser	Ala	Gly	Ile	Lys	Gly	Ile	Ser	His
		35					40					45			
His	Val	Gln	Leu	Lys	Phe	Leu	Ile	Ile	Asn	Asn	Phe	*			
	50					55					60				

<210> 1945
 <211> 79
 <212> PRT
 <213> Homo sapiens

<400> 1945

```

Met Gln Leu Ile Leu Trp Leu Pro Trp Tyr Val Asp Gln Thr Phe Cys
 1              5              10              15
His Ser Val Leu Gln Cys Cys Cys Pro Gly Gln Leu Cys Gln Ser Phe
              20              25              30
His Ser Asn Arg Asn Asp Ala Arg Leu Leu Gly Ala Lys Gln Ser Ile
              35              40              45
Met Arg Arg Lys Arg Trp Leu Glu Pro Ser Val Arg Glu Cys Ala Pro
              50              55              60
Gly Met Ile Leu Tyr Lys Ile Gln Ser Tyr Leu Lys Ile Gln *
65              70              75              78

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<210> 1946

<211> 72

<212> PRT

<213> Homo sapiens

<400> 1946

```

Met Leu Arg Trp Gly Phe Leu Glu Ile Leu Phe Leu Arg Ser Trp Phe
 1              5              10              15
His Ser Trp Ile Cys Leu Leu Pro Thr Pro Gln Leu Pro Pro Asn Gly
              20              25              30
Ala Ser Ala Gly Ser Gln Asp Glu Gly Ser Arg Arg Arg Leu Ser Leu
              35              40              45
Glu Val Arg Gly Leu Met Asn His Val Pro Asn Leu Cys Val Ala Phe
              50              55              60
Leu Ser Ile Val Ser Ile Ser *
65              70 71

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<210> 1947

<211> 56

<212> PRT

<213> Homo sapiens

<400> 1947

```

Met Trp Asn Val Ala Phe Leu Phe Gln Trp Phe Leu Ser Leu Lys Lys
 1              5              10              15
Glu Gly Arg Ser Ser Val Glu Thr Lys Asp Arg Arg Ser Val Arg Asp
              20              25              30
Leu Trp Gly Met Pro Lys Lys Met Val Ser Phe Gly Gly Glu Trp Leu
              35              40              45
Arg Glu Gly Leu Arg Glu Val *
50              55

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<210> 1948

<211> 48

<212> PRT

<213> Homo sapiens

<400> 1948

Met	Ser	Leu	Leu	Leu	Pro	Pro	Leu	Ala	Leu	Leu	Leu	Leu	Leu	Ala	Ala
1				5				10						15	
Leu	Val	Ala	Pro	Ala	Thr	Ala	Ala	Thr	Ala	Tyr	Arg	Pro	Asp	Trp	Asn
		20					25						30		
Arg	Leu	Ser	Gly	Leu	Thr	Arg	Ala	Arg	Val	Glu	Thr	Cys	Gly	Gly	*
		35					40					45		47	

<210> 1949

<211> 136

<212> PRT

<213> Homo sapiens

<400> 1949

Met	Leu	Leu	Ala	Thr	Leu	Leu	Leu	Leu	Leu	Leu	Gly	Gly	Ala	Leu	Ala
1				5				10						15	
His	Pro	Asp	Arg	Ile	Ile	Phe	Pro	Asn	His	Ala	Cys	Glu	Asp	Pro	Pro
		20					25						30		
Ala	Val	Leu	Leu	Glu	Val	Gln	Gly	Thr	Leu	Gln	Arg	Pro	Leu	Val	Arg
		35					40					45			
Asp	Ser	Arg	Thr	Ser	Pro	Ala	Asn	Cys	Thr	Trp	Leu	Ile	Leu	Gly	Ser
	50					55					60				
Lys	Glu	Gln	Thr	Val	Thr	Ile	Arg	Phe	Gln	Lys	Leu	His	Leu	Ala	Cys
65					70					75					80
Gly	Ser	Glu	Arg	Leu	Thr	Leu	Arg	Ser	Pro	Leu	Gln	Pro	Leu	Ile	Ser
			85						90					95	
Leu	Cys	Glu	Ala	Pro	Pro	Ser	Pro	Leu	Gln	Leu	Pro	Gly	Gly	Asn	Val
			100					105					110		
Thr	Ile	Thr	Tyr	Ser	Tyr	Ala	Gly	Ala	Lys	Arg	Pro	Gln	Gly	His	Gly
		115					120						125		
Phe	Phe	Cys	Phe	Leu	Lys	Ala	Lys								
	130						135	136							

<210> 1950

<211> 78

<212> PRT

<213> Homo sapiens

<400> 1950

Met	Trp	Ile	Tyr	Phe	Trp	Thr	Leu	Asn	Ser	Val	Pro	Val	Ile	Tyr	Met
1				5				10						15	
Ser	Thr	Leu	Met	Ser	Ile	Pro	His	Tyr	Phe	Asp	Tyr	Cys	Cys	Phe	Ile
		20					25						30		
Val	Ser	Asp	Ile	Met	Leu	Pro	Glu	Ile	Thr	Phe	Ser	Thr	Phe	Ile	Leu
		35					40					45			
Leu	Leu	Met	Val	Ala	Leu	Ala	Ile	Arg	Gly	Pro	Leu	His	Phe	Arg	Arg
		50				55					60				
His	Phe	Arg	Ile	Asn	Leu	Ser	Ile	Ala	Thr	Lys	Asn	Ala	*		
65					70					75		77			

<210> 1951

<211> 89
 <212> PRT
 <213> Homo sapiens

<400> 1951
 Met Val Cys Gly Ala Leu Met Trp Ile Met Leu Ile Leu Val Gly Leu
 1 5 10 15
 Gly Phe Pro Phe Ile Met Glu Ala Leu Ser His Phe Leu Tyr Val Pro
 20 25 30
 Phe Leu Gly Val Cys Val Cys Gly Ala Ile Tyr Thr Gly Leu Phe Leu
 35 40 45
 Pro Glu Thr Lys Gly Lys Thr Phe Gln Glu Ile Ser Lys Glu Leu His
 50 55 60
 Arg Leu Asn Phe Pro Arg Arg Ala Gln Gly Pro Thr Trp Arg Ser Leu
 65 70 75 80
 Glu Val Ile Gln Ser Thr Glu Leu *
 85 88

<210> 1952
 <211> 47
 <212> PRT
 <213> Homo sapiens

<400> 1952
 Met Thr Thr Ala Leu Ser Phe Met Val Ile Thr Val Leu Trp Val Leu
 1 5 10 15
 Leu Leu His Leu Leu Ala Asn Ile Cys Ile Pro Arg Lys Cys Ser Phe
 20 25 30
 Val Cys Phe Tyr Ile Asn Gly Ile Leu Leu His Ala Val Phe *
 35 40 45 46

<210> 1953
 <211> 56
 <212> PRT
 <213> Homo sapiens

<400> 1953
 Met Lys Asn Leu Arg Leu Gly Glu Val Val Thr Leu Ser Trp Val Leu
 1 5 10 15
 Val Val Glu Leu Glu Val Lys Ala Lys Ser Val Phe Leu Leu Ala Ile
 20 25 30
 Leu Thr Thr Glu Phe Ser Leu Asn Gln Ser Leu Lys Met Phe Leu Gly
 35 40 45
 Gln Glu Trp Trp Phe Thr Leu *
 50 55

<210> 1954
 <211> 425
 <212> PRT
 <213> Homo sapiens

<400> 1954

Met	Thr	Leu	Arg	Pro	Gly	Thr	Met	Arg	Leu	Ala	Cys	Met	Phe	Ser	Ser	1	5	10	15
Ile	Leu	Leu	Phe	Gly	Ala	Ala	Gly	Leu	Leu	Leu	Phe	Ile	Ser	Leu	Gln	20	25	30	
Asp	Pro	Thr	Glu	Leu	Ala	Pro	Gln	Gln	Val	Pro	Gly	Ile	Lys	Phe	Asn	35	40	45	
Ile	Arg	Pro	Arg	Gln	Pro	His	His	Asp	Leu	Pro	Pro	Gly	Gly	Ser	Gln	50	55	60	
Asp	Gly	Asp	Leu	Lys	Glu	Pro	Thr	Glu	Arg	Val	Thr	Arg	Asp	Leu	Ser	65	70	75	80
Ser	Gly	Ala	Pro	Arg	Gly	Arg	Asn	Leu	Pro	Ala	Pro	Asp	Gln	Pro	Gln	85	90	95	
Pro	Pro	Leu	Gln	Arg	Gly	Thr	Arg	Leu	Arg	Leu	Arg	Gln	Arg	Arg	Arg	100	105	110	
Arg	Leu	Leu	Ile	Lys	Lys	Met	Pro	Ala	Ala	Ala	Thr	Ile	Pro	Ala	Asn	115	120	125	
Ser	Ser	Asp	Ala	Pro	Phe	Ile	Arg	Pro	Gly	Pro	Gly	Thr	Leu	Asp	Gly	130	135	140	
Arg	Trp	Val	Ser	Leu	His	Arg	Ser	Gln	Gln	Glu	Arg	Lys	Arg	Val	Met	145	150	155	160
Gln	Glu	Ala	Cys	Ala	Lys	Tyr	Arg	Ala	Ser	Ser	Ser	Arg	Arg	Ala	Val	165	170	175	
Thr	Pro	Arg	His	Val	Ser	Arg	Ile	Phe	Val	Glu	Asp	Arg	His	Arg	Val	180	185	190	
Leu	Tyr	Cys	Glu	Val	Pro	Lys	Ala	Gly	Cys	Ser	Asn	Trp	Lys	Arg	Val	195	200	205	
Leu	Met	Val	Leu	Ala	Gly	Leu	Ala	Ser	Ser	Thr	Ala	Asp	Ile	Gln	His	210	215	220	
Asn	Thr	Val	His	Tyr	Gly	Ser	Ala	Leu	Lys	Arg	Leu	Asp	Thr	Phe	Asp	225	230	235	240
Arg	Gln	Gly	Ile	Leu	His	Arg	Leu	Ser	Thr	Tyr	Thr	Lys	Met	Leu	Phe	245	250	255	
Val	Arg	Glu	Pro	Phe	Glu	Arg	Leu	Val	Ser	Ala	Phe	Arg	Asp	Lys	Phe	260	265	270	
Glu	His	Pro	Asn	Ser	Tyr	Tyr	His	Pro	Val	Phe	Gly	Lys	Ala	Ile	Leu	275	280	285	
Ala	Arg	Tyr	Arg	Ala	Asn	Ala	Ser	Arg	Glu	Ala	Leu	Arg	Thr	Gly	Ser	290	295	300	
Gly	Val	Arg	Phe	Pro	Glu	Phe	Val	Gln	Tyr	Leu	Leu	Asp	Val	His	Arg	305	310	315	320
Pro	Val	Gly	Met	Asp	Ile	His	Trp	Asp	His	Val	Ser	Arg	Leu	Cys	Ser	325	330	335	
Pro	Cys	Leu	Ile	Asp	Tyr	Asp	Phe	Val	Gly	Lys	Phe	Glu	Ser	Met	Glu	340	345	350	
Asp	Asp	Ala	Asn	Phe	Phe	Leu	Ser	Leu	Ile	Arg	Ala	Pro	Arg	Asn	Leu	355	360	365	
Thr	Phe	Pro	Arg	Phe	Lys	Asp	Arg	His	Ser	Gln	Glu	Ala	Arg	Thr	Thr	370	375	380	
Ala	Arg	Ile	Ala	His	Gln	Tyr	Phe	Ala	Gln	Leu	Ser	Ala	Leu	Gln	Arg	385	390	395	400
Gln	Arg	Thr	Tyr	Asp	Phe	Tyr	Tyr	Met	Asp	Tyr	Leu	Met	Phe	Asn	Tyr	405	410	415	
Ser	Lys	Pro	Phe	Ala	Asp	Leu	Tyr	*								420	424		

<210> 1955
 <211> 106
 <212> PRT
 <213> Homo sapiens

<400> 1955
 Met Val Cys Phe Leu Phe Ile Thr Pro Leu Ala Ala Ile Ser Gly Trp
 1 5 10 15
 Leu Cys Leu Arg Gly Ala Gln Asp His Leu Arg Leu His Ser Gln Leu
 20 25 30
 Glu Ala Val Gly Leu Ile Ala Leu Thr Ile Ala Leu Phe Thr Ile Tyr
 35 40 45
 Val Leu Trp Thr Leu Val Ser Phe Arg Tyr His Cys Gln Leu Tyr Ser
 50 55 60
 Glu Trp Arg Lys Thr Asn Gln Lys Val Arg Leu Lys Ile Arg Glu Ala
 65 70 75 80
 Asp Ser Pro Glu Gly Pro Gln His Ser Pro Leu Ala Ala Gly Leu Leu
 85 90 95
 Lys Lys Val Ala Glu Glu Thr Pro Val *
 100 105

<210> 1956
 <211> 139
 <212> PRT
 <213> Homo sapiens

<400> 1956
 Met Val Leu Pro Phe Ile Cys Asn Leu Leu Arg Arg His Pro Ala Cys
 1 5 10 15
 Arg Val Leu Val His Arg Pro His Gly Pro Glu Leu Asp Ala Asp Pro
 20 25 30
 Tyr Asp Pro Gly Glu Glu Asp Pro Ala Gln Ser Arg Ala Leu Glu Ser
 35 40 45
 Ser Leu Trp Glu Leu Gln Ala Leu Gln Arg His Tyr His Pro Glu Val
 50 55 60
 Ser Lys Ala Ala Ser Val Ile Asn Gln Ala Leu Ser Met Pro Glu Val
 65 70 75 80
 Ser Ile Ala Pro Leu Leu Glu Leu Thr Ala Tyr Glu Ile Phe Glu Arg
 85 90 95
 Asp Leu Lys Lys Lys Gly Pro Glu Pro Val Pro Thr Gly Val Leu Ser
 100 105 110
 Gln Pro Arg Ala Cys Trp Asp Gly Arg Val Lys Leu Cys Ala Gln His
 115 120 125
 Phe His Ala Gln Leu Thr Leu Ala His Leu *
 130 135 138

<210> 1957
 <211> 87
 <212> PRT
 <213> Homo sapiens

<400> 1957

Met	Ala	Ala	Pro	Trp	Arg	Arg	Trp	Pro	Thr	Gly	Leu	Leu	Ala	Val	Leu
1				5					10					15	
Arg	Pro	Leu	Leu	Thr	Cys	Arg	Pro	Leu	Gln	Gly	Thr	Thr	Leu	Gln	Arg
		20						25					30		
Asp	Gly	Leu	Leu	Phe	Glu	His	Asp	Arg	Gly	Arg	Phe	Phe	Thr	Ile	Leu
	35						40					45			
Gly	Leu	Val	Cys	Ala	Gly	Gln	Gly	Gly	Phe	Trp	Ala	Ser	Met	Ala	Gly
	50					55					60				
Ala	Gly	Ala	Leu	Arg	Thr	Pro	Gly	Pro	Leu	Gln	Gly	Met	Asn	Val	Glu
65					70					75					80
Arg	His	Glu	Leu	Leu	Phe	*									
				85	86										

<210> 1958

<211> 48

<212> PRT

<213> Homo sapiens

<400> 1958

Met	Thr	Tyr	Phe	Ser	Gly	Leu	Leu	Val	Ile	Leu	Ala	Phe	Ala	Ala	Trp
1				5					10					15	
Val	Ala	Leu	Ala	Glu	Gly	Leu	Gly	Val	Ala	Glu	Tyr	Ala	Pro	Ala	Ala
		20						25					30		
Leu	Pro	Cys	Ala	Ala	Cys	Ala	Thr	Ile	Leu	Leu	Ser	Ser	Val	Ala	*
		35					40					45		47	

<210> 1959

<211> 65

<212> PRT

<213> Homo sapiens

<400> 1959

Met	Trp	Ser	Leu	Ile	Gln	Thr	Leu	Gln	Ile	Leu	Pro	Gly	Ser	Leu	Ser
1				5					10					15	
Ile	Leu	Leu	Cys	Ser	Ser	Ala	Gly	Trp	Lys	Asp	Cys	Gln	Ser	Ala	Leu
		20						25					30		
Trp	Leu	Asn	His	Val	Phe	Arg	Arg	Ala	Trp	Trp	Leu	Leu	Pro	Val	Ile
	35					40					45				
Leu	Ala	Leu	Trp	Glu	Ala	Glu	Ala	Gly	Gly	Ser	Pro	Glu	Val	Arg	Ser
	50					55				60				64	

*

<210> 1960

<211> 78

<212> PRT

<213> Homo sapiens

<400> 1960

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Met Ser Tyr Val Arg His Val Leu Ser Cys Leu Gly Gly Gly Leu Ala
 1          5          10          15
Leu Trp Arg Ala Gly Gln Trp Leu Trp Ala Gln Arg Leu Gly His Cys
          20          25          30
His Thr Tyr Trp Ala Val Ser Glu Glu Leu Leu Pro Asn Ser Gly His
          35          40          45
Gly Pro Asp Gly Glu Val Pro Lys Asp Lys Glu Gly Gly Val Phe Asp
          50          55          60
Leu Gly Pro Phe Ile Val Gly Phe Trp Gly Pro Gln Ile *
          65          70          75          77

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<210> 1961
<211> 77
<212> PRT
<213> Homo sapiens

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<400> 1961
Met Trp Tyr Gly Val Phe Leu Trp Ala Leu Val Ser Ser Leu Phe Phe
 1          5          10          15
His Val Pro Ala Gly Leu Leu Ala Leu Phe Thr Leu Arg His His Lys
          20          25          30
Tyr Gly Ala Ala Ile Ala Gly Val Tyr Arg Ala Ala Gly Lys Glu Met
          35          40          45
Ile Pro Phe Glu Ala Leu Thr Leu Gly Thr Gly Gln Thr Phe Cys Val
          50          55          60
Leu Val Val Ser Phe Leu Arg Ile Leu Ala Thr Leu *
          65          70          75          76

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<210> 1962
<211> 65
<212> PRT
<213> Homo sapiens

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<400> 1962
Met Phe Ser Ala Val Phe Pro Ala Val Ser Cys Gln Ile Ser Leu Leu
 1          5          10          15
Ser Thr Cys Asn Ser Leu Gln His Phe Pro Tyr Ala Gly Val Leu Cys
          20          25          30
Phe Arg Pro Val Leu Cys Leu Cys Pro Gly Gln Asp Phe Cys Gly Asn
          35          40          45
Val Arg Cys Gln Trp Arg Leu Leu Ala Gly Val Asp Val Ser Asp Val
          50          55          60          64
*
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<210> 1963
<211> 53
<212> PRT
<213> Homo sapiens

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<221> misc_feature

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<222> (1) ... (53)

<223> Xaa = any amino acid or nothing

<400> 1963

Met	Thr	Cys	Pro	Leu	His	Thr	Thr	Pro	Phe	Pro	Phe	Ser	Leu	Pro	Cys
1				5				10					15		
Leu	Pro	Thr	Phe	Phe	Leu	Asp	Phe	Pro	Ser	Cys	Ser	Leu	Ser	Ser	Cys
		20						25				30			
Leu	Pro	Ile	Cys	Phe	Pro	Phe	Leu	Ser	Leu	Xaa	Gln	Ile	Leu	His	Ile
		35					40					45			
Val	Ala	Leu	Leu	Ile											
	50			53											

<210> 1964

<211> 232

<212> PRT

<213> Homo sapiens

<400> 1964

Met	Pro	Ser	Val	His	Arg	Leu	Leu	Gly	Pro	Gln	Pro	Val	Pro	Ser	Arg
1				5				10					15		
Arg	Leu	Arg	Leu	Ala	Leu	Ala	Leu	Leu	Ser	Leu	Gln	Val	Val	Val	
		20						25				30			
Phe	Phe	Leu	Val	Val	Leu	Gly	Gln	Gly	Arg	Leu	Leu	Gln	Pro	Cys	Arg
		35					40					45			
Gly	Cys	Leu	Glu	Leu	Pro	Gly	Gly	Pro	Gly	Glu	Ala	Glu	Asp	His	Gly
	50					55				60					
Asp	Leu	Gly	Gln	Gly	Trp	Val	Gly	Leu	Leu	Gln	Ala	Leu	Asp	Pro	Leu
65					70					75				80	
Ser	His	Arg	Arg	Leu	Val	Met	Ser	Thr	Arg	His	Ala	His	Gly	Glu	Asp
				85					90				95		
Arg	Ala	Phe	Leu	His	Phe	Ile	Asp	Val	Lys	Leu	Val	Val	Val	Pro	Ala
			100					105				110			
Thr	Pro	His	Ile	Leu	Gln	Val	Gln	Leu	His	Arg	Val	Val	Glu	Val	Pro
		115				120						125			
Leu	Leu	Arg	Arg	Leu	Phe	His	Phe	Pro	Leu	Leu	Arg	Gly	Gln	Gln	Val
	130					135					140				
Ser	Ser	Glu	Asp	Val	Val	Ile	His	Thr	Leu	Val	Ala	Glu	Pro	Gln	Gly
145					150					155				160	
Glu	Gly	Ala	Leu	Asn	Lys	Asp	Arg	Pro	Gly	Trp	Ile	Val	Ala	Gly	Gln
			165					170					175		
Gly	Gly	Leu	Leu	Ile	Gly	Thr	Leu	Asp	Ser	Trp	Cys	Gly	Asp	Ile	His
		180					185					190			
Ala	Leu	Cys	Pro	Thr	Met	Trp	Gly	Trp	Gly	Gly	Ser	Ala	Ala	Pro	Val
		195					200					205			
Glu	Ser	Leu	Gly	Lys	Gly	Thr	Ser	Gly	Glu	Gly	Asp	Gly	Arg	Arg	Gln
	210					215					220				
Gly	Gln	Arg	Thr	Gly	Pro	Gly	*								
225					230	231									

<210> 1965

<211> 253

<212> PRT

<213> Homo sapiens

<400> 1965

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Met Gly Cys Ala Ile Ile Ala Gly Phe Leu His Tyr Leu Phe Leu Ala
 1          5          10          15
Cys Phe Phe Trp Met Leu Val Glu Ala Val Ile Leu Phe Leu Met Val
          20          25          30
Arg Asn Leu Lys Val Val Asn Tyr Phe Ser Ser Arg Asn Ile Lys Met
          35          40          45
Leu His Ile Cys Ala Phe Gly Tyr Gly Leu Pro Met Leu Val Val Val
          50          55          60
Ile Ser Ala Ser Val Gln Pro Gln Gly Tyr Gly Met His Asn Arg Cys
65          70          75          80
Trp Leu Asn Thr Glu Thr Gly Phe Ile Trp Ser Phe Leu Gly Pro Val
          85          90          95
Cys Thr Val Ile Val Ile Asn Ser Leu Leu Leu Thr Trp Thr Leu Trp
          100          105          110
Ile Leu Arg Gln Arg Leu Ser Ser Val Asn Ala Glu Val Ser Thr Leu
          115          120          125
Lys Asp Thr Arg Leu Leu Thr Phe Lys Ala Phe Ala Gln Leu Phe Ile
130          135          140
Leu Gly Cys Ser Trp Val Leu Gly Ile Phe Gln Ile Gly Pro Val Ala
145          150          155          160
Gly Val Met Ala Tyr Leu Phe His His His Gln Gln Pro Ala Gly Gly
          165          170          175
Leu His Leu Pro His Pro Leu Ser Ala Gln Arg Pro Gly Thr Arg Arg
          180          185          190
Ile Gln Glu Val Asp His Trp Glu Asp Glu Ala Gln Leu Pro Val Pro
          195          200          205
Asp Leu Lys Asp Leu Ala Val Leu His Ala Ile Arg Phe Gln Asp Gly
210          215          220
Leu Lys Ser Phe Leu Ala Phe Lys Tyr Ala Met Glu Pro Thr Val Gly
225          230          235          240
Gly Thr Ser Ser Phe Pro Cys Arg Glu Pro Tyr Pro *
          245          250          252

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<210> 1966

<211> 649

<212> PRT

<213> Homo sapiens

<400> 1966

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Met Val Thr Cys Phe Ile Ile Gly Leu Leu Phe Pro Val Phe Ser Val
 1          5          10          15
Cys Tyr Leu Ile Ala Pro Lys Ser Pro Leu Gly Leu Phe Ile Arg Lys
          20          25          30
Pro Phe Ile Lys Phe Ile Cys His Thr Ala Ser Tyr Leu Thr Phe Leu
          35          40          45
Phe Leu Leu Leu Leu Ala Ser Gln His Ile Asp Arg Ser Asp Leu Asn
          50          55          60
Arg Gln Gly Pro Pro Pro Thr Ile Val Glu Trp Met Ile Leu Pro Trp
65          70          75          80
Val Leu Gly Phe Ile Trp Gly Glu Ile Lys Gln Met Trp Asp Gly Gly
          85          90          95
Leu Gln Asp Tyr Ile His Asp Trp Trp Asn Leu Met Asp Phe Val Met

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Asn	Ser	Leu	Tyr	Leu	Ala	Thr	Ile	Ser	Leu	Lys	Ile	Val	Ala	Phe	Val
		115					120					125			
Lys	Tyr	Ser	Ala	Leu	Asn	Pro	Arg	Glu	Ser	Trp	Asp	Met	Trp	His	Pro
	130					135					140				
Thr	Leu	Val	Ala	Glu	Ala	Leu	Phe	Ala	Ile	Ala	Asn	Ile	Phe	Ser	Ser
145					150					155					160
Leu	Arg	Leu	Ile	Ser	Leu	Phe	Thr	Ala	Asn	Ser	His	Leu	Gly	Pro	Leu
			165						170					175	
Gln	Ile	Ser	Leu	Gly	Arg	Met	Leu	Leu	Asp	Ile	Leu	Lys	Phe	Leu	Phe
		180						185					190		
Ile	Tyr	Cys	Leu	Val	Leu	Leu	Ala	Phe	Ala	Asn	Gly	Leu	Asn	Gln	Leu
	195						200					205			
Tyr	Phe	Tyr	Tyr	Glu	Glu	Thr	Lys	Gly	Leu	Thr	Cys	Lys	Gly	Ile	Arg
	210					215					220				
Cys	Glu	Lys	Gln	Asn	Asn	Ala	Phe	Ser	Thr	Leu	Phe	Glu	Thr	Leu	Gln
225					230					235					240
Ser	Leu	Phe	Trp	Ser	Ile	Phe	Gly	Leu	Ile	Asn	Leu	Tyr	Val	Thr	Asn
			245						250					255	
Val	Lys	Ala	Gln	His	Glu	Phe	Thr	Glu	Phe	Val	Gly	Ala	Thr	Met	Phe
			260						265				270		
Gly	Thr	Tyr	Asn	Asp	Ile	Ser	Leu	Val	Val	Leu	Leu	Asn	Met	Leu	Ile
		275					280					285			
Ala	Met	Met	Asn	Asn	Ser	Tyr	Gln	Leu	Ile	Ala	Asp	His	Ala	Asp	Ile
	290					295					300				
Glu	Trp	Lys	Phe	Ala	Arg	Thr	Lys	Leu	Trp	Met	Ser	Tyr	Phe	Glu	Glu
305					310					315					320
Gly	Gly	Thr	Leu	Pro	Thr	Pro	Phe	Asn	Val	Ile	Pro	Ser	Pro	Lys	Ser
			325						330					335	
Leu	Trp	Tyr	Leu	Ile	Lys	Trp	Ile	Trp	Thr	His	Leu	Cys	Lys	Lys	Lys
		340						345					350		
Met	Arg	Arg	Lys	Pro	Glu	Ser	Phe	Gly	Thr	Ile	Gly	Arg	Arg	Ala	Ala
		355					360					365			
Asp	Asn	Leu	Arg	Arg	His	His	Gln	Tyr	Gln	Glu	Val	Met	Arg	Asn	Leu
	370					375					380				
Val	Lys	Arg	Tyr	Val	Ala	Ala	Met	Ile	Arg	Asp	Ala	Lys	Thr	Glu	Glu
385					390					395					400
Gly	Leu	Thr	Glu	Glu	Asn	Phe	Lys	Glu	Leu	Lys	Gln	Asp	Ile	Ser	Ser
			405						410					415	
Phe	Arg	Phe	Glu	Val	Leu	Gly	Leu	Leu	Arg	Gly	Ser	Lys	Leu	Ser	Thr
			420						425				430		
Ile	Gln	Ser	Ala	Asn	Ala	Ser	Lys	Glu	Ser	Ser	Asn	Ser	Ala	Asp	Ser
		435					440					445			
Asp	Glu	Lys	Ser	Asp	Ser	Glu	Gly	Asn	Ser	Lys	Asp	Lys	Lys	Lys	Asn
	450					455					460				
Phe	Ser	Leu	Phe	Asp	Leu	Thr	Thr	Leu	Ile	His	Pro	Arg	Ser	Ala	Ala
465					470					475					480
Ile	Ala	Ser	Glu	Arg	His	Asn	Ile	Ser	Asn	Gly	Ser	Ala	Leu	Val	Val
			485						490					495	
Gln	Glu	Pro	Pro	Arg	Glu	Lys	Gln	Arg	Lys	Val	Asn	Phe	Val	Thr	Asp
		500						505					510		
Ile	Lys	Asn	Phe	Gly	Leu	Phe	His	Arg	Arg	Ser	Lys	Gln	Asn	Ala	Ala
		515					520					525			
Glu	Gln	Asn	Ala	Asn	Gln	Ile	Phe	Ser	Val	Ser	Glu	Glu	Val	Ala	Arg
	530					535					540				
Gln	Gln	Ala	Ala	Gly	Pro	Leu	Glu	Arg	Asn	Ile	Gln	Leu	Glu	Ser	Arg
545					550					555					560
Gly	Leu	Ala	Ser	Arg	Gly	Asp	Leu	Ser	Ile	Pro	Gly	Leu	Ser	Glu	Gln
			565						570					575	

Cys Val Leu Val Asp His Arg Glu Arg Asn Thr Asp Thr Leu Gly Leu
 580 585 590
 Gln Val Gly Lys Arg Val Cys Pro Phe Lys Ser Glu Lys Val Val Val
 595 600 605
 Glu Asp Thr Val Pro Ile Ile Pro Lys Glu Lys His Ala Lys Glu Glu
 610 615 620
 Asp Ser Ser Ile Asp Tyr Asp Leu Asn Leu Pro Asp Thr Val Thr His
 625 630 635 640
 Glu Asp Tyr Val Thr Thr Arg Leu *
 645 648

<210> 1967
 <211> 80
 <212> PRT
 <213> Homo sapiens

<400> 1967
 Met Thr Gly Thr His Gln Tyr Ala Trp Val Ile Phe Val Phe Leu Ser
 1 5 10 15
 Thr Tyr Arg Ile Ser Pro Cys Trp Pro Gly Trp Phe Gln Thr Pro Gly
 20 25 30
 Leu Arg Trp Ser Ala Cys Leu Gly Leu Pro Gly Cys Trp Asp Cys Arg
 35 40 45
 Arg Glu Pro Leu Gly Pro Ala Cys Ile Phe Tyr Gln Pro Gln Ile Gln
 50 55 60
 Gln Gln Ala Glu Asp Ser Ala His Lys Thr Gly Leu Val Ser Trp *
 65 70 75 79

<210> 1968
 <211> 49
 <212> PRT
 <213> Homo sapiens

<400> 1968
 Met Thr Tyr Ile Leu Val Tyr Lys Leu Gly Ser Ile Leu Leu Ser Phe
 1 5 10 15
 Phe Leu Ile Cys Phe Glu Glu Phe Ser Ser Glu Asn Ser Gly Pro Gly
 20 25 30
 Ile Phe Phe Val Glu Arg Val Leu Ile Leu Asn Leu Ile Ser Leu Ile
 35 40 45 48
 *

<210> 1969
 <211> 150
 <212> PRT
 <213> Homo sapiens

<400> 1969
 Met His Val His Phe Trp Leu Val Thr Ala Ser Phe Ser Ser Ser Val

1		5		10		15									
Ala	Trp	Thr	Thr	Ala	Glu	Ile	Thr	Gly	Gly	Val	Ser	Gly	Val	Ala	Ala
		20						25					30		
Gly	Val	Gly	Ser	Trp	Glu	Gly	Gly	Ser	Glu	Arg	Gly	Asp	Arg	Phe	Gly
		35					40					45			
Asp	Phe	Phe	Thr	Leu	Asn	Val	Ser	Val	Phe	Arg	Gly	Val	Phe	Phe	Phe
	50					55					60				
Leu	Ala	Gly	Leu	Phe	Ser	Pro	Ser	Pro	Ser	Thr	Pro	Leu	Ala	Ser	Ile
	65				70					75					80
Ala	Leu	Ala	Gly	Ile	Ser	Lys	Glu	Ala	Gly	Asp	Leu	Glu	Gly	Glu	Leu
			85						90					95	
Gly	Val	Leu	Glu	Asp	Val	Leu	Lys	Gly	Ser	Thr	Asp	Ser	Ser	Gln	Val
		100						105					110		
Ser	Gly	Ser	Lys	Leu	Tyr	Asp	Cys	Trp	Gly	Ser	Leu	Gly	Asp	Ser	Cys
		115					120					125			
Ile	Phe	Glu	Val	Glu	Glu	Lys	Gly	Leu	Lys	Leu	Gly	Ser	Ser	His	Leu
	130					135					140				
Ser	Ile	Ser	Lys	Val	*										
145				149											

<210> 1970
 <211> 48
 <212> PRT
 <213> Homo sapiens

<400> 1970

Met	Phe	Gly	Ser	Arg	Gly	Leu	Leu	Cys	Met	Cys	Val	Phe	Phe	Phe	Asn
1				5				10						15	
Ile	Leu	Ala	Ser	Gln	Cys	Lys	Val	Ile	Ser	Ser	Gly	Gly	Met	Leu	Cys
		20						25					30		
Cys	Arg	Thr	Pro	Thr	Leu	Leu	Asp	Tyr	Leu	Arg	Gln	His	Phe	Leu	*
		35					40					45		47	

<210> 1971
 <211> 64
 <212> PRT
 <213> Homo sapiens

<400> 1971

Met	Leu	Ile	Phe	Thr	Val	Leu	Glu	Leu	Leu	Leu	Ala	Ala	Tyr	Ser	Ser
1				5				10						15	
Val	Phe	Trp	Trp	Lys	Gln	Leu	Tyr	Ser	Asn	Asn	Pro	Gly	Val	Ser	Met
		20						25					30		
Leu	Thr	Cys	Arg	Leu	Ile	Pro	Ala	Val	Ser	Gln	Val	Gln	Ala	Thr	Ile
		35					40					45			
Ile	Gln	Pro	Gln	Lys	Val	Ala	Lys	Arg	Arg	Ile	Asn	Tyr	Cys	Ser	*
	50					55					60			63	

<210> 1972
 <211> 211
 <212> PRT

<213> Homo sapiens

<221> misc_feature

<222> (1)...(211)

<223> Xaa = any amino acid or nothing

<400> 1972

```

Met Thr Arg Met Leu Asn Met Leu Ile Val Phe Arg Phe Leu Arg Ile
 1          5          10          15
Ile Pro Ser Met Lys Pro Met Ala Val Val Ala Ser Thr Val Leu Gly
          20          25          30
Leu Val Gln Asn Met Arg Ala Phe Gly Gly Ile Leu Val Val Val Tyr
          35          40          45
Tyr Val Phe Ala Ile Ile Gly Ile Asn Leu Phe Arg Gly Val Ile Val
          50          55          60
Ala Leu Pro Gly Asn Ser Ser Leu Ala Pro Ala Asn Gly Ser Ala Pro
 65          70          75          80
Cys Gly Ser Phe Glu Gln Leu Glu Tyr Trp Ala Asn Asn Phe Asp Asp
          85          90          95
Phe Xaa Ala Ala Leu Val Thr Leu Trp Asn Leu Met Val Val Asn Asn
          100          105          110
Trp Gln Val Phe Leu Asp Ala Tyr Arg Arg Tyr Ser Gly Pro Trp Ser
          115          120          125
Lys Ile Tyr Phe Val Leu Trp Trp Leu Val Ser Ser Val Ile Trp Val
          130          135          140
Asn Leu Phe Leu Ala Leu Ile Leu Glu Asn Phe Leu His Lys Trp Asp
145          150          155          160
Pro Arg Ser His Leu Gln Pro Leu Ala Gly Thr Pro Glu Ala Thr Tyr
          165          170          175
Gln Met Thr Val Glu Leu Leu Phe Arg Asp Ile Leu Glu Glu Pro Gly
          180          185          190
Glu Asp Glu Leu Thr Glu Arg Leu Ser Gln His Pro His Leu Trp Leu
          195          200          205
Cys Arg *
          210

```

<210> 1973

<211> 53

<212> PRT

<213> Homo sapiens

<400> 1973

```

Met Ile Gln Tyr Ala Val Phe Val Leu Cys Gly Phe Leu Tyr Leu Cys
 1          5          10          15
Phe Met Leu Phe Phe Phe Ser Ser Val Thr Gln Ala Gly Val Ser Glu
          20          25          30
Pro Arg Ser Ser His Cys Thr Pro Ala Trp Ala Thr Glu Arg Asp Cys
          35          40          45
Val Ser Asn Lys *
          50          52

```

<210> 1974

<211> 50

<212> PRT
<213> Homo sapiens

<400> 1974
Met Gly Val Thr Thr Ala Thr Leu Ile Ala Pro Ala Leu Arg Thr Leu
1 5 10 15
Arg Thr Ser Ala Val Cys Ser Thr Thr Ala Glu Thr Ser Phe Ser Ala
20 25 30
Cys Thr Phe Val Ser Thr Ser Cys Ser Lys Lys Gly Thr Pro Arg Phe
35 40 45
Ser *
49

<210> 1975
<211> 87
<212> PRT
<213> Homo sapiens

<400> 1975
Met Cys Ser Ser Pro Ala Val Leu Leu Cys Ala Leu Val Val Gly Cys
1 5 10 15
Pro Val Gly Phe Pro His Glu Ala Asp Pro Gly Ser Met Gln Arg Ala
20 25 30
Ser Ser Leu Gly Leu His Gln Ala Ser Val Val Ser Ala Gly Trp Leu
35 40 45
Gly Gln Ala Arg His Gly Ala His Leu Gly Cys Ser Leu Leu Pro Ser
50 55 60
Gly Val His Gly Leu Trp Arg Pro Ser Val Gln Pro Arg Arg Asp Pro
65 70 75 80
Val Thr Glu Leu Gln Cys *
85 86

<210> 1976
<211> 107
<212> PRT
<213> Homo sapiens

<400> 1976
Met Ala Leu Tyr Glu Leu Phe Ser His Pro Val Glu Arg Ser Tyr Arg
1 5 10 15
Ala Gly Leu Cys Ser Lys Ala Ala Leu Phe Leu Leu Leu Ala Ala Ala
20 25 30
Leu Thr Tyr Ile Pro Pro Leu Leu Val Ala Phe Arg Ser His Gly Phe
35 40 45
Trp Leu Lys Arg Ser Ser Tyr Glu Glu Gln Pro Thr Val Arg Phe Gln
50 55 60
His Gln Val Leu Leu Val Ala Leu Leu Gly Pro Glu Ser Asp Gly Phe
65 70 75 80
Leu Ala Trp Ser Thr Phe Pro Ala Phe Asn Arg Gln Gln Gly Asp Arg
85 90 95
Leu Arg Val Pro Leu Val Ser Trp Arg Arg *
100 105 106

<210> 1977
 <211> 134
 <212> PRT
 <213> Homo sapiens

<400> 1977
 Met Val Thr Val Ala Met Ala Cys Ser Gly Ala Leu Thr Ala Leu Cys
 1 .5 10 15
 Cys Leu Phe Val Ala Met Gly Val Leu Arg Val Pro Trp His Cys Pro
 20 25 30
 Leu Leu Leu Val Thr Glu Gly Leu Leu Asp Met Leu Ile Ala Gly Gly
 35 40 45
 Tyr Ile Pro Ala Leu Tyr Phe Tyr Phe His Tyr Leu Ser Ala Ala Tyr
 50 55 60
 Gly Ser Pro Val Cys Lys Glu Arg Gln Ala Leu Tyr Gln Ser Lys Gly
 65 70 75 80
 Tyr Ser Gly Phe Gly Cys Ser Phe His Gly Ala Asp Ile Gly Ala Gly
 85 90 95
 Ile Phe Ala Ala Leu Gly Ile Val Val Phe Ala Leu Gly Ala Val Leu
 100 105 110
 Ala Ile Lys Gly Tyr Arg Lys Val Arg Lys Leu Lys Glu Lys Pro Ala
 115 120 125
 Glu Met Phe Glu Phe *
 130 133

<210> 1978
 <211> 61
 <212> PRT
 <213> Homo sapiens

<400> 1978
 Met Thr Leu Arg Met Leu Val Pro Arg Leu Leu Leu Thr Arg Gln Leu
 1 5 10 15
 Val Trp Phe Phe Ser Ala Ala Thr Glu Arg Asp Pro Glu Met Met Asn
 20 25 30
 Gly Ile Pro Arg Lys Leu Met Ser Phe Pro Pro Ser Ser Val Thr Ser
 35 40 45
 Arg Arg Ser Arg Arg Gly His His Leu Gln Ser Leu *
 50 55 60

<210> 1979
 <211> 66
 <212> PRT
 <213> Homo sapiens

<400> 1979
 Met Leu Thr Ala Leu Pro Lys Ser Phe Val Phe Lys Val Val Gly Glu
 1 5 10 15
 Trp Trp Trp Leu Phe Ile Cys Leu Val Leu Ala Phe Ala Asp Gly Lys

```

      20      25      30
Arg His Lys Tyr Ser Tyr Asp Ala Asn Val Phe Leu Gln Val Asn Tyr
      35      40      45
Ile Thr Trp Pro Asp Ser Phe Ser Pro Val Pro Ser Leu Pro Pro Ile
      50      55      60
Leu *
      65

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```

<210> 1980
<211> 51
<212> PRT
<213> Homo sapiens

```

```

      <400> 1980
Met Asp Thr Pro Arg Ser Thr Val Phe Ser Leu Trp Phe Gly Ile His
  1      5      10      15
Lys Ala Ala Gly Ile Phe Gln Val Leu Val Gln Leu Leu Leu Leu
      20      25      30
Thr Pro Tyr Pro Arg Tyr Pro Ser Ser Pro Leu Pro Pro Tyr Ser
      35      40      45
Tyr Pro *
      50

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```

<210> 1981
<211> 79
<212> PRT
<213> Homo sapiens

```

```

      <400> 1981
Met Met Trp Ala Ala Gly Ala Val Ala Ala Met Ser Ser Ile Thr Phe
  1      5      10      15
Pro Ala Val Ser Ala Leu Val Ser Arg Thr Ala Asp Ala Asp Gln Gln
      20      25      30
Gly Glu Leu Ile Gly Thr Ser Asp Asn Tyr Leu Lys Val Gln Asn Val
      35      40      45
Leu Ile Leu Cys Ser Val Ser Tyr Val Leu Lys His Lys Tyr Ile Phe
      50      55      60
Arg Gly Glu Thr Phe Lys Ile Ala Phe Asp Ile Asn Arg Lys Ser
      65      70      75      79

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<210> 1982
<211> 156
<212> PRT
<213> Homo sapiens

```

```

      <400> 1982
Met His Asn Asn Tyr Thr Ala Leu Leu Gly Val Trp Ile Tyr Gly Phe
  1      5      10      15
Phe Val Leu Met Leu Leu Val Leu Asp Leu Leu Tyr Tyr Ser Ala Met
      20      25      30

```



```

Asn Tyr Asp Ile Cys Lys Val Tyr Leu Ala Arg Trp Gly Ile Gln Gly
  35          40          45
Arg Trp Met Lys Gln Asp Pro Arg Arg Trp Gly Asn Pro Ala Arg Ala
  50          55          60
Pro Arg Pro Gly Gln Arg Ala Pro Gln Pro Gln Pro Pro Pro Gly Pro
  65          70          75          80
Leu Pro Gln Ala Pro Gln Ala Val His Thr Leu Arg Gly Asp Ala His
          85          90          95
Ser Pro Pro Leu Met Thr Phe Gln Ser Ser Ser Ala Trp Glu Gly Ala
          100          105          110
Ser Gln Gln Gln Glu Ile Pro Glu Asn Glu Glu Thr Glu Lys Gly Asp
          115          120          125
Asp Gln Ile Ser Ser Phe Leu Gly Val Thr Ser Asn Thr Lys Glu Ala
          130          135          140
Ser Val Ile Gly Ile Gln Lys Thr Val Asp Val Leu
145          150          155 156

```

<210> 1983
 <211> 63
 <212> PRT
 <213> Homo sapiens

```

<400> 1983
Met Arg Leu Ile Arg Ile Trp Phe Ser Gly Lys Phe Phe Pro Ala Gly
  1          5          10          15
Leu His Ser Gln Ser Leu Pro Ser Ile Ser Ala Ala Ile Gly Leu Leu
          20          25          30
Met Leu Phe Thr Asn Leu Phe Thr Cys Ser Lys Cys Phe Val Ile Ser
          35          40          45
Val Ala Lys Thr Met Ser Ile Ile Ala Trp Arg Ser Val Arg *
          50          55          60          62

```

<210> 1984
 <211> 232
 <212> PRT
 <213> Homo sapiens

```

<400> 1984
Met Phe His Arg Cys Gly Ile Met Ala Leu Val Ala Ala Tyr Leu Asn
  1          5          10          15
Phe Val Ser Gln Met Ile Ala Val Pro Ala Phe Cys Gln His Val Ser
          20          25          30
Lys Val Ile Glu Ile Arg Thr Met Glu Ala Pro Tyr Phe Leu Pro Glu
          35          40          45
His Ile Phe Arg Asp Lys Cys Met Leu Pro Lys Ser Leu Glu Lys His
          50          55          60
Glu Lys Asp Leu Tyr Phe Leu Thr Asn Lys Ile Ala Glu Ser Leu Gly
          65          70          75          80
Gly Lys Trp Asp Ile Val Leu Arg Asp Cys Gln Phe Arg Met Leu Pro
          85          90          95
Gln Val Thr Asp Glu Asp Arg Leu Ser Arg Arg Lys Ser Ile Val Asp
          100          105          110
Thr Val Ser Ile Gln Val Asp Ile Leu Ser Asn Asn Val Pro Ser Asp

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<210> 1985
<211> 141
<212> PRT
<213> Homo sapiens
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```
<210> 1986
<211> 292
<212> PRT
<213> Homo sapiens
```

1075

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Asn Glu Thr Leu Lys His Leu Thr Asn Asp Thr Thr Thr Pro Glu Ser
  50          55          60
Thr Met Thr Ser Gly Gln Ala Arg Ala Ser Thr Gln Ser Pro Gln Ala
  65          70          75          80
Leu Glu Asp Ser Gly Pro Val Asn Ile Ser Val Ser Ile Thr Leu Thr
          85          90          95
Leu Asp Pro Leu Lys Pro Phe Gly Gly Tyr Ser Arg Asn Val Thr His
          100          105          110
Leu Tyr Ser Thr Ile Leu Gly His Gln Ile Gly Leu Ser Gly Arg Glu
          115          120          125
Ala His Glu Glu Ile Asn Ile Thr Phe Thr Leu Pro Thr Ala Trp Ser
          130          135          140
Ser Asp Asp Cys Ala Leu His Gly His Cys Glu Gln Val Val Phe Thr
          145          150          155          160
Ala Cys Met Thr Leu Thr Ala Ser Pro Gly Val Phe Pro Val Thr Val
          165          170          175
Gln Pro Pro His Cys Val Pro Asp Thr Tyr Ser Asn Ala Thr Leu Trp
          180          185          190
Tyr Lys Ile Phe Thr Thr Ala Arg Asp Ala Asn Thr Lys Tyr Ala Gln
          195          200          205
Asp Tyr Asn Pro Phe Trp Cys Tyr Lys Gly Ala Ile Gly Lys Val Tyr
          210          215          220
His Ala Leu Asn Pro Lys Leu Thr Val Ile Val Pro Asp Asp Asp Arg
          225          230          235          240
Ser Leu Ile Asn Leu His Leu Met His Thr Ser Tyr Phe Leu Phe Val
          245          250          255
Met Val Ile Thr Met Phe Cys Tyr Ala Val Ile Lys Gly Arg Pro Ser
          260          265          270
Lys Leu Arg Gln Ser Asn Pro Glu Phe Cys Pro Glu Lys Val Ala Leu
          275          280          285
Ala Glu Ala *
          290 291

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<210> 1987
<211> 186
<212> PRT
<213> Homo sapiens

```

```

<400> 1987
Met Ala Gly Pro Arg Pro Arg Trp Arg Asp Gln Leu Leu Phe Met Ser
  1          5          10          15
Ile Ile Val Leu Val Ile Val Val Ile Cys Leu Met Leu Tyr Ala Leu
          20          25          30
Leu Trp Glu Ala Gly Asn Leu Thr Asp Leu Pro Asn Leu Arg Ile Gly
          35          40          45
Phe Tyr Asn Phe Cys Leu Trp Asn Glu Asp Thr Ser Thr Leu Gln Cys
          50          55          60
His Gln Phe Pro Glu Leu Glu Ala Leu Gly Val Pro Arg Val Gly Leu
          65          70          75          80
Gly Leu Ala Arg Leu Gly Val Tyr Gly Ser Leu Val Leu Thr Leu Phe
          85          90          95
Ala Pro Gln Pro Leu Leu Leu Ala Gln Cys Asn Ser Asp Glu Arg Ala
          100          105          110
Trp Arg Leu Ala Val Gly Phe Leu Ala Val Ser Ser Val Leu Leu Ala
          115          120          125
Gly Gly Leu Gly Leu Phe Leu Ser Tyr Val Trp Lys Trp Val Arg Leu

```

```

      130              135              140
Ser Leu Pro Gly Pro Gly Phe Leu Ala Leu Gly Ser Ala Gln Ala Leu
145              150              155              160
Leu Ile Leu Leu Leu Ile Ala Met Ala Val Phe Pro Leu Arg Ala Glu
      165              170              175
Arg Ala Glu Ser Lys Leu Glu Ser Cys *
      180              185

```

```

<210> 1988
<211> 47
<212> PRT
<213> Homo sapiens

```

```

      <400> 1988
Met Phe Asn Leu Lys Glu Ile Pro Leu Ile Leu Tyr Val Leu Leu Ser
  1              5              10              15
Val Val Cys Phe Ser Phe Ser Tyr Gly Val Glu Pro Pro Lys Ser Trp
      20              25              30
Ser Gln Gly Lys Lys Gly Val Val Thr Gly Asp Ser Leu Leu *
      35              40              45 46

```

```

<210> 1989
<211> 58
<212> PRT
<213> Homo sapiens

```

```

      <400> 1989
Met Thr Leu Pro Cys Ala Ile Gln Met Phe Ile Ala Ala Val Gln Val
  1              5              10              15
Leu Ser Val Thr Tyr Leu Asp Leu Gln Pro His Leu Asn Glu Ser Leu
      20              25              30
Leu Thr Val Ser Leu Ile Phe Arg Phe Ile Phe Asn Leu Leu Phe Tyr
      35              40              45
Leu Gly Leu Thr Phe Ser Val Thr Lys *
      50              55              57

```

```

<210> 1990
<211> 80
<212> PRT
<213> Homo sapiens

```

```

      <400> 1990
Met Ile Ser Phe Val Leu Val Lys Gly Leu Phe Leu Lys Cys Thr Phe
  1              5              10              15
His Phe Pro Leu Phe Asn Arg His Ile Met Ser Cys Ser Phe Leu Arg
      20              25              30
Ser Asp Phe Met His Gly Asp Ser Met Cys Phe Ser Ser Ser Tyr Met
      35              40              45
Leu Leu Asn Glu Ser Leu Tyr Ile Ser Phe His Thr Met Val Ile Lys
      50              55              60

```

Thr His Trp Ala Val Cys Gly Cys Gly Phe Ile Ser Glu Lys Leu *
 65 70 75 79

<210> 1991
 <211> 48
 <212> PRT
 <213> Homo sapiens

<400> 1991
 Met Val Arg Trp Lys Arg Glu Ile His Glu Leu Leu Trp Pro Leu Trp
 1 5 10 15
 Phe Cys Ser Trp Pro Arg Val Phe Glu Lys Gln Arg Ser Met Thr Asp
 20 25 30
 Phe Thr Cys Ser Ala Phe Ser Ala Phe Cys Leu Phe Cys Cys Pro *
 35 40 45 47

<210> 1992
 <211> 51
 <212> PRT
 <213> Homo sapiens

<400> 1992
 Met Leu Phe Ser Leu Gln Thr Ala Ile Val Tyr Cys Thr Ile Thr Val
 1 5 10 15
 Leu Cys His Arg Thr Leu Ile Phe Ser Ser Met His Lys Cys Ile Met
 20 25 30
 Leu Phe Pro Ile Ile His Ile Cys Ser Tyr Val Phe Phe Val Ile Tyr
 35 40 45
 Ser Phe *
 50

<210> 1993
 <211> 79
 <212> PRT
 <213> Homo sapiens

<400> 1993
 Met Trp Cys Ala Glu Met Leu His Ile Leu Phe Met Gly Leu Arg Val
 1 5 10 15
 Asn Leu Asn His Glu Thr Phe Leu Ile Ile Cys Cys Glu Ile Tyr Gln
 20 25 30
 Ala Trp Met Ile Ser Val Phe Leu Val Val Cys Cys Phe Phe Lys Glu
 35 40 45
 Val Ile Gln Val Pro Leu Leu Ser Cys Gln His Thr Lys Leu Leu Lys
 50 55 60
 Lys Leu Thr Ile Ser Phe Arg Ser Asn Ser Gln Pro Val Glu *
 65 70 75 78

<210> 1994
 <211> 52
 <212> PRT
 <213> Homo sapiens

<400> 1994
 Met Thr Ser Leu Gln Lys Arg Leu Leu Ser His Cys Met Gln Cys Thr
 1 5 10 15
 Met Leu Leu Gly Ile Cys Gly Gln Cys Lys Asp Asp Asp Ile Leu Ala
 20 25 30
 Ser Trp Val Ile Gln Glu Phe Thr Ala Met Gln Ser Arg Ser Arg Asn
 35 40 45
 Leu Gln Ser Arg
 50 52

<210> 1995
 <211> 164
 <212> PRT
 <213> Homo sapiens

<400> 1995
 Met Leu Leu Ala Thr Leu Leu Leu Leu Leu Gly Gly Ala Leu Ala
 1 5 10 15
 His Pro Asp Arg Ile Ile Phe Pro Asn His Ala Cys Glu Asp Pro Pro
 20 25 30
 Ala Val Leu Leu Glu Val Gln Gly Thr Leu Gln Arg Pro Leu Val Arg
 35 40 45
 Asp Ser Arg Thr Ser Pro Ala Asn Cys Thr Trp Leu Ile Leu Gly Ser
 50 55 60
 Lys Glu Arg Thr Val Thr Ile Arg Phe Gln Lys Leu His Leu Ala Cys
 65 70 75 80
 Gly Ser Glu Arg Leu Thr Leu Arg Ser Pro Leu Gln Pro Leu Ile Ser
 85 90 95
 Leu Cys Glu Ala Pro Pro Ser Pro Leu Gln Leu Pro Gly Gly Asn Val
 100 105 110
 Thr Ile Thr Tyr Ser Tyr Ala Gly Gly Gln Ser Thr His Gly Pro Gly
 115 120 125
 Leu Pro Ala Leu Leu Gln Ala Ser Pro Ser Pro Trp Cys Leu Cys Arg
 130 135 140
 Leu Ala Asp Val Leu Ala Arg Arg Gly Ser Met Pro Glu Pro Pro Leu
 145 150 155 160
 Cys Ile Cys *
 163

<210> 1996
 <211> 77
 <212> PRT
 <213> Homo sapiens

<400> 1996
 Met Trp Tyr Gly Val Phe Leu Trp Ala Leu Val Ser Ser Leu Phe Phe
 1 5 10 15

```

His Val Pro Ala Gly Leu Leu Ala Leu Phe Thr Leu Arg His His Lys
      20                      25                      30
Tyr Gly Ala Ala Ile Ala Gly Val Tyr Arg Ala Ala Gly Lys Glu Met
      35                      40                      45
Ile Pro Phe Glu Ala Leu Thr Leu Gly Thr Gly Gln Thr Phe Cys Val
      50                      55                      60
Leu Val Val Ser Phe Leu Arg Ile Leu Ala Thr Leu *
      65                      70                      75 76

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```

<210> 1997
<211> 233
<212> PRT
<213> Homo sapiens

```

```

<400> 1997
Met Gly Leu Pro Gly Leu Phe Cys Leu Ala Val Leu Ala Ala Ser Ser
  1      5      10      15
Phe Ser Lys Ala Arg Glu Glu Glu Ile Thr Pro Val Val Ser Ile Ala
      20      25      30
Tyr Lys Val Leu Glu Val Phe Pro Lys Gly Arg Trp Val Leu Ile Thr
      35      40      45
Cys Cys Ala Pro Gln Pro Pro Pro Ile Thr Tyr Ser Leu Cys Gly
      50      55      60
Thr Lys Asn Ile Lys Val Ala Lys Lys Val Val Lys Thr His Glu Pro
      65      70      75      80
Ala Ser Phe Asn Leu Asn Val Thr Leu Lys Ser Ser Pro Asp Leu Leu
      85      90      95
Thr Tyr Phe Cys Arg Ala Ser Ser Thr Ser Gly Ala His Val Asp Ser
      100     105     110
Ala Arg Leu Gln Met His Trp Glu Leu Trp Ser Arg Gln Arg Gly Arg
      115     120     125
Pro Gln Gly Gly Asp Asp Leu Pro Gly Val Leu Gly Gln Pro Thr Tyr
      130     135     140
His Gln Gln Pro Asp Arg Glu Gly Trp Ala Gly Pro Pro Ala Ala Glu
      145     150     155     160
Thr Met Pro Gln Glu Ala Cys Gln Leu Ser Pro Ser Cys Arg Ala Arg
      165     170     175
His Arg Thr Trp Phe Trp Cys Gln Ala Cys Lys Gln Arg Gln Cys Ser
      180     185     190
Ser Thr Ala Pro Ser Gln Trp Leu Pro Gln Val Val Thr Gln Lys Met
      195     200     205
Glu Asp Trp Gln Gly Pro Pro Gly Glu Pro His Pro Cys Leu Ala Ala
      210     215     220
Leu Gln Glu His Pro Pro Ser Glu *
      225     230     232

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```

<210> 1998
<211> 58
<212> PRT
<213> Homo sapiens

```

```

<400> 1998
Met Pro Ala Ile Val Val Phe Leu Phe Cys Phe Val Ile Ser Asp Gly

```

```

      1           5           10           15
Leu Thr Leu Ser Pro Arg Leu Asp Cys Thr Gly Leu Asn Leu Leu Ser
      20           25           30
Ser Ser Asp Arg Pro Thr Ser Ala Ser Pro Val Ala Gly Thr Ile Ala
      35           40           45
Val Gln His His Ala Trp Leu Ile Phe *
      50           55           57

```

<210> 1999
 <211> 66
 <212> PRT
 <213> Homo sapiens

```

      <400> 1999
Met Trp Leu Leu Val Thr Leu Ser Pro Arg Leu Leu Leu Ser Pro Ser
      1           5           10           15
His Phe Thr Leu Glu Gly Pro Gln Ile Asp Gln Ala His Ser Glu Leu
      20           25           30
Gln Val Leu Pro Leu Val Arg Pro Ser Ala Val Pro Leu Leu Gln Arg
      35           40           45
Ala Ser Trp Leu Arg Ser Arg Cys Leu His Leu Pro Lys Thr Val Leu
      50           55           60
Val *
      65

```

<210> 2000
 <211> 106
 <212> PRT
 <213> Homo sapiens

```

      <400> 2000
Met Gly Arg Cys Leu Ser Leu Gly Ile Leu Arg Gln Gly Leu Cys Cys
      1           5           10           15
Pro Cys Trp Ser Val Val Ala Glu Ser Gly Leu Thr Ala Ser Leu Gly
      20           25           30
Gly Ser Gly His Pro Ala Thr Ser Cys Ser Lys Glu Ala Gly Thr Thr
      35           40           45
Gly Glu Cys Met His His Thr Gln Leu Gly Ile Gln Thr Leu Arg Thr
      50           55           60
Tyr Tyr Met Pro Asp Ser Val Glu Leu Ser Glu Thr Met Ser Gly Cys
      65           70           75           80
Asn Trp Leu Pro Thr Gln Gln Thr Gln Ser Trp Ala Asn Ile Leu Arg
      85           90           95
Val Tyr Leu Thr Leu Lys Tyr Arg Phe Ser
      100           105 106

```

<210> 2001
 <211> 88
 <212> PRT
 <213> Homo sapiens

<400> 2001

```

Met Glu Arg Arg Arg Leu Leu Gly Gly Met Ala Leu Leu Leu Leu Gln
 1          5          10          15
Ala Leu Pro Asn Pro Leu Ser Ala Arg Ala Glu Pro Pro Gln Val Arg
          20          25          30
Gly Arg Gly Arg Leu Gly His Val Gly Ser Trp Gly Ser Ser Arg Pro
          35          40          45
Gly Trp Arg Gly Leu Lys Glu Cys Cys Cys Gln Glu Leu Arg Gly Pro
          50          55          60
Glu Arg Gly Val Tyr Ala Trp Arg Gly Gln Asp Leu Lys Gly Arg Arg
          65          70          75          80
Tyr Leu Ala Glu Gly His Leu *
          85          87

```

<210> 2002

<211> 85

<212> PRT

<213> Homo sapiens

<400> 2002

```

Met Arg Lys Leu Ile Ala Gly Leu Ile Phe Leu Lys Ile Trp Thr Cys
 1          5          10          15
Thr Val Arg Thr Ser Thr Asp Leu Pro Gln Thr Glu Asp Cys Ser Gln
          20          25          30
Cys Ile His Gln Val Thr Glu Ile Gly Gln Lys Val Ala Thr Val Leu
          35          40          45
Leu Phe Tyr Gly Tyr Tyr Lys Tyr Thr Gly Thr Leu Lys Arg Thr Cys
          50          55          60
Leu Tyr Asn Val Ile Leu Tyr Lys Val Tyr Ser Pro Gly Asn Asp Gln
          65          70          75          80
Pro Asp Val Leu *
          84

```

<210> 2003

<211> 46

<212> PRT

<213> Homo sapiens

<400> 2003

```

Met Ala Phe Ala Ser Val Leu Leu Ala Arg Ala Ser Pro Ala Val Val
 1          5          10          15
Arg Ala Cys Leu Ser Arg Cys Ala Tyr Gly Val Gly Ser Asp Cys Pro
          20          25          30
His Leu Val Thr Leu Ala Ala Leu Ile Leu Phe Trp Val *
          35          40          45

```

<210> 2004

<211> 51

<212> PRT

<213> Homo sapiens

<400> 2004

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Met Trp Leu Phe Ile Ala Ser Lys Cys Ile Phe Leu Leu Ile Val Pro
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Asn Phe Ile Phe Val Phe Trp Arg Lys Val Phe Ser His Asp Arg Leu
      20              25              30
Asn Ile Ala Tyr Ser Phe Glu Leu Ser Ser Lys Tyr Ile Phe Ile Leu
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Phe Ile *
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<210> 2005

<211> 66

<212> PRT

<213> Homo sapiens

<400> 2005

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Arg Lys Gly Pro Phe Pro Asn Thr Lys Asp Leu Ser Gly Trp Thr Pro
      20              25              30
Ser Ser Gly Arg Glu Glu Leu Trp Lys Gly Lys Arg Ala Ala Ala Ala
      35              40              45
Thr Arg Asn Pro Leu Val Leu Thr Gly Leu Gly Ser Pro Ser Ala Arg
      50              55              60
Leu *
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<210> 2006

<211> 46

<212> PRT

<213> Homo sapiens

<400> 2006

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Met Leu Val Pro Thr Phe Phe Leu Leu Ser Leu Leu Asp Gln Ser Cys
 1              5              10              15
Leu Ser Ile Cys Val Ser Gln Asp Tyr Phe Ser Ser Ile Val Val Gln
      20              25              30
Ile Arg Gln Ile Gly Ser Leu Cys Leu Asn Lys Ser Leu *
      35              40              45

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<210> 2007

<211> 87

<212> PRT

<213> Homo sapiens

<400> 2007

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 1              5              10              15

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Thr Trp Ser Pro Cys Ser Ser Met Ile Pro Leu Met Ala Ser Ser Thr
 20 25 30
 Ala Pro Ser Arg Leu Arg Thr Gly Ser Leu Pro Ser Met Thr Ile Pro
 35 40 45
 Ser Pro Ser Arg Arg Ser Glu Ile Pro Pro Lys Ser Ser Gly Val Met
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 Pro Ala Leu Ile Ile Leu Trp Arg Pro Pro Ala Ser Leu Pro Ala Trp
 65 70 75 80
 Arg Arg Leu Gly Ile Thr *
 85 86

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 <211> 58
 <212> PRT
 <213> Homo sapiens

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 Leu Thr Leu Ser Pro Arg Leu Asp Cys Thr Gly Leu Asn Leu Leu Ser
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 Ser Ser Asp Arg Pro Thr Ser Ala Ser Pro Val Ala Gly Thr Ile Ala
 35 40 45
 Val Gln His His Ala Trp Leu Ile Phe *
 50 55 57

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 <213> Homo sapiens

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 Tyr Ala Leu Thr Phe Pro Gly Cys Ser Trp Leu Pro Asp Trp Ala Leu
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 35 40 45 46

<210> 2010
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 <212> PRT
 <213> Homo sapiens

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 Leu Leu Ile Ser Ser Leu Pro Arg Glu Tyr Thr Val Ile Asn Glu Ala
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 Cys Pro Gly Ala Glu Trp Asn Ile Met Cys Arg Glu Cys Cys Glu Tyr

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      35      40      45
Asp Gln Ile Glu Cys Val Cys Pro Gly Lys Arg Glu Val Val Gly Tyr
  50      55      60
Thr Ile Pro Cys Cys Arg Asn Glu Glu Asn Glu Cys Asp Ser Cys Leu
  65      70      75      80
Ile His Pro Gly Cys Thr Ile Phe Glu Asn Cys Lys Ser Cys Arg Asn
      85      90      95
Gly Ser Trp Gly Gly Thr Leu Asp Asp Phe Tyr Val Lys Gly Phe Tyr
      100      105      110
Cys Ala Glu Cys Arg Ala Gly Trp Tyr Gly Gly Asp Cys Met Arg Cys
      115      120      125
Gly Gln Val Leu Arg Ala Pro Lys Gly Gln Ile Leu Leu Glu Ser Tyr
      130      135      140
Pro Leu Asn Ala His Cys Glu Trp Thr Ile His Ala Lys Pro Gly Phe
      145      150      155      160
Val Ile Gln Leu Arg Phe Val Met Leu Ser Leu Glu Phe Asp Tyr Met
      165      170      175
Cys Gln Tyr Asp Tyr Val Glu Gly Cys Asp Gly Asp Asn Arg Asp Gly
      180      185      190
His Ile Ile Lys Arg Val Cys Gly Asn Glu Arg Ala Ala Pro Ile His
      195      200      205
Asn Ile Arg Ile Leu Thr Ser Arg Pro Phe Pro Leu Pro Gly Leu Ser
      210      215      220
Lys Ile Leu Thr Gly Phe His Ala Pro Phe *
      225      230      234

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<210> 2011
<211> 61
<212> PRT
<213> Homo sapiens

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Met Val Phe Ala Trp Gly Leu Ala Val Asn Lys Thr Ser Leu Val Pro
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Ile Phe Met Asp Leu Ser Leu Ala Gly Lys Ile Tyr Ile Lys Gln Arg
      20      25      30
Met Arg Met Glu Glu Asn Leu Leu Gly Asp Asn Glu Val Lys Glu Glu
      35      40      45
Lys Asp Gln Ala Val Lys Trp Gln Thr Leu Arg Trp *
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<210> 2012
<211> 107
<212> PRT
<213> Homo sapiens

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      <400> 2012
Met Ile Arg Cys Gly Leu Ala Cys Glu Arg Cys Arg Trp Phe Leu Thr
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Leu Leu Leu Leu Ser Ala Ile Ala Phe Asp Ile Ile Ala Leu Ala Gly
      20      25      30
Arg Gly Trp Leu Gln Ser Ser Asp Arg Val Gln Thr Ser Ser Leu Trp
      35      40      45

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Arg Arg Cys Phe Leu Pro Gln Gly Arg Arg Arg Arg Gln Arg Val Leu
 50 55 60
 Arg Gly Arg Leu Pro Gln Pro His Gly Val Arg Val Gly Ser Ser Ser
 65 70 75 80
 Ala Ala Met Leu Phe Trp Gly Val Ser Ile Leu Glu Ile Cys Phe Ile
 85 90 95
 Leu Ser Phe Phe Val Leu Cys Val Pro Gln Ile
 100 105 107

<210> 2013
 <211> 67
 <212> PRT
 <213> Homo sapiens

<400> 2013
 Met Gly Val Val Leu Tyr Val Leu Val Cys Gly Ala Leu Pro Phe Asp
 1 5 10 15
 Gly Pro Thr Leu Pro Ile Leu Arg Gln Arg Val Leu Gly Arg Lys Ile
 20 25 30
 Pro Asp Ser Val Phe His Val Arg Arg Leu Arg Ala Pro Tyr Pro Lys
 35 40 45
 Asp Val Gly Pro Arg Pro Ile Gln Thr Ala Asn His Ser Pro Asn Gln
 50 55 60
 Gly Ala *
 65 66

<210> 2014
 <211> 59
 <212> PRT
 <213> Homo sapiens

<400> 2014
 Met Phe Leu Arg Phe Pro Leu Arg Phe Gly Ile Leu Ala Asp Lys Leu
 1 5 10 15
 Ile Leu Tyr Lys Ala Ser His Phe Thr Met Leu Ser Val Pro Gly Leu
 20 25 30
 Tyr Leu Ser Thr Leu Leu Glu Gly Ile Phe Ile Leu Lys Lys Leu Ser
 35 40 45
 Phe Met Arg Arg Met Gly Val His Ala Thr *
 50 55 58

<210> 2015
 <211> 55
 <212> PRT
 <213> Homo sapiens

<400> 2015
 Met Val Arg Leu Gln Val Leu Val Leu Val Phe Arg Val Val Gly Ser
 1 5 10 15
 Gln Gln Met Leu Arg Gln Gly Ala Ala Gly Ala Arg Ser His Arg Val

20 25 30
 Leu Ala Ser Leu His Phe Gln His Gly Phe Gly Thr Phe His Thr Pro
 35 40 45
 Ala Arg Ala Gly Gly Ser Glu
 50 55

<210> 2016
 <211> 64
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 <213> Homo sapiens

<400> 2016
 Met Ser Leu Arg Phe Cys Phe Cys Leu Pro Val Cys Pro Ser Leu Pro
 1 5 10 15
 Ile Ser Val Phe His Val Phe Leu Ser Val Ser Asp His Pro Val Ser
 20 25 30
 Leu Cys Leu Thr Val Ser Gly His Glu Met Ser Val Ile Val Ala Arg
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 Phe Thr Leu Ser Leu Tyr Leu Phe Pro Leu Arg Ser Gly Ile Ser *
 50 55 60 63

<210> 2017
 <211> 58
 <212> PRT
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<400> 2017
 Met Ile Leu Leu Leu Ser Thr Phe Phe Cys Cys Phe Arg Glu Asp Ser
 1 5 10 15
 Cys Phe Tyr Lys Lys Tyr Val Gly Leu Val Gln Trp Leu Met Pro Val
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 Ile Pro Ala Leu Trp Glu Ala Lys Val Gly Gly Ser Leu Glu Val Trp
 35 40 45
 Ser Ser Arg Pro Ala Trp Pro Ile Arg *
 50 55 57

<210> 2018
 <211> 66
 <212> PRT
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<400> 2018
 Met Leu His Ile Ser Ser Ala Phe His Cys Tyr Ala Phe Leu Pro Leu
 1 5 10 15
 Phe Ala Leu Thr His Asn Phe Ile Phe Leu Phe Tyr Leu Leu Ser Leu
 20 25 30
 Ser Pro Lys Leu Glu Cys Lys Phe Gln Glu Gly Arg Asp Phe Tyr Leu
 35 40 45
 Phe Phe Phe Val Phe Pro Ile Phe Trp His Val Trp His Arg Lys Gly
 50 55 60

WO 01/54477

PCT/US01/02687

Ile *
65

PATENT COOPERATION TREATY

PCT

DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rule 13ter.1(c) and 39)

Applicant's or agent's file reference 21272-018	IMPORTANT DECLARATION	Date of mailing (day/month/year) 87 JUN 2001
International application No. PCT/US01/02687	International filing date (day/month/year) 25 January 2001 (25.01.2001)	(Earliest) Priority date (day/month/year) 25 January 2000 (25.01.2000)
International Patent Classification (IPC) or both national classification and IPC IPC(7): C12P 21/06 and US Cl.: 435/69.1		
Applicant HYSEQ, INC.		

This International Searching Authority hereby declares, according to Article 17(2)(a), that no international search report will be established on the international application for the reasons indicated below.

1. ☐ The subject matter of the international application relates to:
- a. ☐ scientific theories.
 - b. ☐ mathematical theories
 - c. ☐ plant varieties.
 - d. ☐ animal varieties.
 - e. ☐ essential biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
 - f. ☐ schemes, rules or methods of doing business.
 - g. ☐ schemes, rules or methods of performing purely mental acts.
 - h. ☐ schemes, rules or methods of playing games.
 - i. ☐ methods for treatment of the human body by surgery or therapy.
 - j. ☐ methods for treatment of the animal body by surgery or therapy.
 - k. ☐ diagnostic methods practised on the human or animal body.
 - l. ☐ mere presentations of information.
 - m. ☐ computer programs for which this International Searching Authority is not equipped to search prior art.
2. ☒ The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:
- ☐ the description ☒ the claims ☐ the drawings
3. ☒ The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:
- ☐ the written form has not been furnished or does not comply with the standard.
- ☒ the computer readable form has not been furnished or does not comply with the standard.
4. Further comments:

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Authorized officer
Young J. Kim

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
2 August 2001 (02.08.2001)

PCT

(10) International Publication Number
WO 01/55441 A2

(51) International Patent Classification ⁶ : C12P 21/06, G01N 33/53, C07K 1/00, 16/00, C07H 21/04			60/229,343	1 September 2000 (01.09.2000)	US
			60/229,287	1 September 2000 (01.09.2000)	US
			60/229,345	1 September 2000 (01.09.2000)	US
(21) International Application Number: PCT/US01/01320			60/229,513	5 September 2000 (05.09.2000)	US
			60/229,509	5 September 2000 (05.09.2000)	US
(22) International Filing Date: 17 January 2001 (17.01.2001)			60/230,438	6 September 2000 (06.09.2000)	US
			60/230,437	6 September 2000 (06.09.2000)	US
(25) Filing Language: English			60/231,413	8 September 2000 (08.09.2000)	US
			60/232,081	8 September 2000 (08.09.2000)	US
(26) Publication Language: English			60/231,244	8 September 2000 (08.09.2000)	US
			60/231,414	8 September 2000 (08.09.2000)	US
(30) Priority Data:			60/232,080	8 September 2000 (08.09.2000)	US
60/179,065	31 January 2000 (31.01.2000)	US	60/231,242	8 September 2000 (08.09.2000)	US
60/180,628	4 February 2000 (04.02.2000)	US	60/231,243	8 September 2000 (08.09.2000)	US
60/184,664	24 February 2000 (24.02.2000)	US	60/231,968	12 September 2000 (12.09.2000)	US
60/186,350	2 March 2000 (02.03.2000)	US	60/233,065	14 September 2000 (14.09.2000)	US
60/189,874	16 March 2000 (16.03.2000)	US	60/233,064	14 September 2000 (14.09.2000)	US
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60/209,467	7 June 2000 (07.06.2000)	US	60/232,399	14 September 2000 (14.09.2000)	US
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60/225,270	14 August 2000 (14.08.2000)	US	60/236,367	29 September 2000 (29.09.2000)	US
60/225,447	14 August 2000 (14.08.2000)	US	60/236,368	29 September 2000 (29.09.2000)	US
60/225,266	14 August 2000 (14.08.2000)	US	60/236,370	29 September 2000 (29.09.2000)	US
60/225,213	14 August 2000 (14.08.2000)	US	60/236,327	29 September 2000 (29.09.2000)	US
60/225,759	14 August 2000 (14.08.2000)	US	60/237,039	2 October 2000 (02.10.2000)	US
60/224,519	14 August 2000 (14.08.2000)	US	60/237,038	2 October 2000 (02.10.2000)	US
60/224,518	14 August 2000 (14.08.2000)	US	60/237,040	2 October 2000 (02.10.2000)	US
60/225,268	14 August 2000 (14.08.2000)	US	60/237,037	2 October 2000 (02.10.2000)	US
60/225,758	14 August 2000 (14.08.2000)	US	60/236,802	2 October 2000 (02.10.2000)	US
60/225,267	14 August 2000 (14.08.2000)	US	60/239,937	13 October 2000 (13.10.2000)	US
60/225,214	14 August 2000 (14.08.2000)	US	60/239,935	13 October 2000 (13.10.2000)	US
60/226,279	18 August 2000 (18.08.2000)	US	60/241,221	20 October 2000 (20.10.2000)	US
60/226,868	22 August 2000 (22.08.2000)	US	60/241,808	20 October 2000 (20.10.2000)	US
60/227,182	22 August 2000 (22.08.2000)	US	60/241,787	20 October 2000 (20.10.2000)	US
60/226,681	22 August 2000 (22.08.2000)	US	60/240,960	20 October 2000 (20.10.2000)	US
60/227,009	23 August 2000 (23.08.2000)	US	60/241,809	20 October 2000 (20.10.2000)	US
60/228,924	30 August 2000 (30.08.2000)	US	60/241,785	20 October 2000 (20.10.2000)	US
60/229,344	1 September 2000 (01.09.2000)	US			

[Continued on next page]

(54) Title: NUCLEIC ACIDS, PROTEINS, AND ANTIBODIES

(57) Abstract:

WO 01/55441 A2



60/241,786	20 October 2000 (20.10.2000)	US	(71) Applicant (for all designated States except US): HUMAN
60/241,826	20 October 2000 (20.10.2000)	US	GENOME SCIENCES, INC. [US/US]; 9410 Key West
60/244,617	1 November 2000 (01.11.2000)	US	Avenue, Rockville, MD 20850 (US).
60/246,474	8 November 2000 (08.11.2000)	US	(72) Inventors; and
60/246,532	8 November 2000 (08.11.2000)	US	(75) Inventors/Applicants (for US only): ROSEN, Craig,
60/246,609	8 November 2000 (08.11.2000)	US	A. [US/US]; 22400 Rolling Hill Lane, Laytonsville, MD
60/246,613	8 November 2000 (08.11.2000)	US	20882 (US). BARASH, Steven, C. [US/US]; 111 Watkins
60/246,610	8 November 2000 (08.11.2000)	US	Pond Blvd., #301, Rockville, MD 20850 (US). RUBEN,
60/246,611	8 November 2000 (08.11.2000)	US	Steven, M. [US/US]; 18528 Heritage Hills Drive, Olney,
60/246,477	8 November 2000 (08.11.2000)	US	MD 20832 (US).
60/246,527	8 November 2000 (08.11.2000)	US	(74) Agents: HOOVER, Kenley, K. et al.; Human Genome
60/246,528	8 November 2000 (08.11.2000)	US	Sciences, Inc., 9410 Key West Avenue, Rockville, MD
60/246,525	8 November 2000 (08.11.2000)	US	20850 (US).
60/246,475	8 November 2000 (08.11.2000)	US	(81) Designated States (national): AE, AG, AL, AM, AT, AU,
60/246,526	8 November 2000 (08.11.2000)	US	AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
60/246,476	8 November 2000 (08.11.2000)	US	DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
60/246,478	8 November 2000 (08.11.2000)	US	HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
60/246,523	8 November 2000 (08.11.2000)	US	LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
60/246,524	8 November 2000 (08.11.2000)	US	NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
60/249,299	17 November 2000 (17.11.2000)	US	TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
60/249,297	17 November 2000 (17.11.2000)	US	(84) Designated States (regional): ARIPO patent (GH, GM,
60/249,244	17 November 2000 (17.11.2000)	US	KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
60/249,245	17 November 2000 (17.11.2000)	US	patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
60/249,207	17 November 2000 (17.11.2000)	US	patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
60/249,212	17 November 2000 (17.11.2000)	US	IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
60/249,213	17 November 2000 (17.11.2000)	US	CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
60/249,208	17 November 2000 (17.11.2000)	US	Published:
60/249,218	17 November 2000 (17.11.2000)	US	— with declaration under Article 17(2)(a); without abstract;
60/249,215	17 November 2000 (17.11.2000)	US	title not checked by the International Searching Authority
60/249,211	17 November 2000 (17.11.2000)	US	— with sequence listing part of description published sepa-
60/249,217	17 November 2000 (17.11.2000)	US	rately in electronic form and available upon request from
60/249,216	17 November 2000 (17.11.2000)	US	the International Bureau
60/249,210	17 November 2000 (17.11.2000)	US	(48) Date of publication of this corrected version:
60/249,214	17 November 2000 (17.11.2000)	US	7 September 2001
60/249,264	17 November 2000 (17.11.2000)	US	(15) Information about Correction:
60/249,265	17 November 2000 (17.11.2000)	US	see PCT Gazette No. 36/2001 of 7 September 2001, Sec-
60/249,300	17 November 2000 (17.11.2000)	US	tion II
60/249,209	17 November 2000 (17.11.2000)	US	For two-letter codes and other abbreviations, refer to the "Guid-
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60/251,988	5 December 2000 (05.12.2000)	US	
60/251,479	6 December 2000 (06.12.2000)	US	
60/251,869	8 December 2000 (08.12.2000)	US	
60/251,856	8 December 2000 (08.12.2000)	US	
60/251,868	8 December 2000 (08.12.2000)	US	
60/251,990	8 December 2000 (08.12.2000)	US	
60/251,989	8 December 2000 (08.12.2000)	US	
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60/259,678	5 January 2001 (05.01.2001)	US	

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 June 2001 (28.06.2001)

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(10) International Publication Number
WO 01/46407 A1

- (51) International Patent Classification⁷: C12N 15/11
- (21) International Application Number: PCT/US00/33738
- (22) International Filing Date:
12 December 2000 (12.12.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/171,566 23 December 1999 (23.12.1999) US
- (71) Applicant: LEXICON GENETICS INCORPORATED [US/US]; 4000 Research Forest Drive, The Woodlands, TX 77381 (US).
- (72) Inventors: WALKE, D., Wade; 7507 Danehill Drive, Spring, TX 77389 (US). TURNER, C., Alexander, Jr.; 67 Winter Wheat Place, The Woodlands, TX 77381 (US). ABUIN, Alejandro; 19 Belcarra Place, The Woodlands, TX 77382 (US). FRIEDRICH, Glenn; Breland & Breland, 2207 Hermann Drive, Houston, TX 77004 (US). ZAMBROWICZ, Brian; 18 Firethorne Place, The Woodlands, TX 77382 (US). SANDS, Arthur, T.; 163 Bristol Bend Circle, The Woodlands, TX 77382 (US).
- (74) Agents: ISHIMOTO, Lance, K. et al.; Lexicon Genetics Incorporated, 4000 Research Forest Drive, The Woodlands, TX 77381 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— With international search report.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 01/46407 A1

(54) Title: POLYNUCLEOTIDES ENCODING HUMAN PROTEASE HOMOLOGS

(57) Abstract: Novel human polynucleotide and polypeptide sequences are disclosed that can be used in therapeutic, diagnostic, and pharmacogenomic applications.

POLYNUCLEOTIDES ENCODING HUMAN PROTEASE HOMOLOGS

The present application claims the benefit of U.S.
5 Provisional Application Number 60/171,566 which was filed on
December 22, 1999 and is herein incorporated by reference in
its entirety.

1. INTRODUCTION

The present invention relates to the discovery,
10 identification, and characterization of novel human
polynucleotides encoding proteins sharing sequence similarity
with mammalian proteases. The invention encompasses the
described polynucleotides, host cell expression systems, the
encoded protein, fusion proteins, polypeptides and peptides,
15 antibodies to the encoded proteins and peptides, and
genetically engineered animals that either lack or over
express the disclosed sequences, antagonists and agonists of
the proteins, and other compounds that modulate the expression
or activity of the proteins encoded by the disclosed
20 polynucleotides that can be used for diagnosis, drug
screening, clinical trial monitoring and the treatment of
physiological disorders.

2. BACKGROUND OF THE INVENTION

25 Proteases cleave protein substrates as part of
degradation, maturation, and secretory pathways within the
body. Proteases have been associated with, *inter alia*,
regulating development, modulating cellular processes,
fertility, and infectious disease.

30

3. SUMMARY OF THE INVENTION

The present invention relates to the discovery,
identification, and characterization of nucleotides that
encode novel human proteins, and the corresponding amino acid
35 sequences of these proteins. The novel human proteins (NHPs)
described for the first time herein share structural
similarity with animal proteases, and particularly trypsin-
like proteases such as oviductin.

The novel human nucleic acid (cDNA) sequences described herein, encode a proteins/open reading frames (ORFs) of 306, 302, and 164 amino acids in length (see SEQ ID NOS: 2, 4, and 6 respectively).

5 The invention also encompasses agonists and antagonists of the described NHPs, including small molecules, large molecules, mutant NHPs, or portions thereof that compete with native NHPs, NHP peptides, and NHP antibodies, as well as nucleotide sequences that can be used to inhibit the
10 expression of the described NHPs (e.g., antisense and ribozyme molecules, and gene or regulatory sequence replacement constructs) or to enhance the expression of the described NHPs (e.g., expression constructs that place the described sequence under the control of a strong promoter system), and transgenic
15 animals that express a NHP transgene, or "knock-outs" (which can be conditional) that do not express a functional NHP.

Further, the present invention also relates to processes for identifying compounds that modulate, i.e., act as agonists or antagonists, of NHP expression and/or NHP activity that
20 utilize purified preparations of the described NHP and/or NHP product, or cells expressing the same. Such compounds can be used as therapeutic agents for the treatment of any of a wide variety of symptoms associated with biological disorders or imbalances.

25

4. DESCRIPTION OF THE SEQUENCE LISTING AND FIGURES

The Sequence Listing provides the sequences of the NHP ORFs encoding the described NHP amino acid sequences. SEQ ID NO: 7 describes an NHP ORF with flanking sequences.

30

5. DETAILED DESCRIPTION OF THE INVENTION

The NHPs, described for the first time herein, are novel proteins that are expressed in, *inter alia*, human cell lines, and human thymus, trachea, kidney, prostate, testis, thyroid,
35 salivary gland, stomach, placenta, mammary gland, adipose, skin, esophagus, bladder, pericardium, and fetal kidney cells.

The described sequences were compiled from gene trapped cDNAs and clones isolated from a human kidney cDNA library (Edge Biosystems, Gaithersburg, MD). The present invention encompasses the nucleotides presented in the Sequence Listing, 5 host cells expressing such nucleotides, the expression products of such nucleotides, and: (a) nucleotides that encode mammalian homologs of the described sequences, including the specifically described NHPs, and the NHP products; (b) nucleotides that encode one or more portions of a NHP that 10 correspond to functional domains of the NHP, and the polypeptide products specified by such nucleotide sequences, including but not limited to the novel regions of any active domain(s); (c) isolated nucleotides that encode mutant versions, engineered or naturally occurring, of a described 15 NHP in which all or a part of at least one domain is deleted or altered, and the polypeptide products specified by such nucleotide sequences, including but not limited to soluble proteins and peptides in which all or a portion of the signal sequence is deleted; (d) nucleotides that encode chimeric 20 fusion proteins containing all or a portion of a coding region of a NHP, or one of its domains (e.g., a receptor or ligand binding domain, accessory protein/self-association domain, etc.) fused to another peptide or polypeptide; or (e) therapeutic or diagnostic derivatives of the described 25 polynucleotides such as oligonucleotides, antisense polynucleotides, ribozymes, dsRNA, or gene therapy constructs comprising a sequence first disclosed in the Sequence Listing.

As discussed above, the present invention includes: (a) the human DNA sequences presented in the Sequence Listing 30 (and vectors comprising the same) and additionally contemplates any nucleotide sequence encoding a contiguous NHP open reading frame (ORF), or a contiguous exon splice junction first described in the Sequence Listing, that hybridizes to a complement of a DNA sequence presented in the Sequence Listing 35 under highly stringent conditions, e.g., hybridization to filter-bound DNA in 0.5 M NaHPO₄, 7% sodium dodecyl sulfate (SDS), 1 mM EDTA at 65°C, and washing in 0.1xSSC/0.1% SDS at

68°C (Ausubel F.M. et al., eds., 1989, Current Protocols in Molecular Biology, Vol. I, Green Publishing Associates, Inc., and John Wiley & sons, Inc., New York, at p. 2.10.3) and encodes a functionally equivalent gene product. Additionally
5 contemplated are any nucleotide sequences that hybridize to the complement of the DNA sequence that encode and express an amino acid sequence presented in the Sequence Listing under moderately stringent conditions, e.g., washing in 0.2xSSC/0.1% SDS at 42°C (Ausubel et al., 1989, *supra*), yet still encode a
10 functionally equivalent NHP product. Functional equivalents of a NHP include naturally occurring NHPs present in other species and mutant NHPs whether naturally occurring or engineered (by site directed mutagenesis, gene shuffling, directed evolution as described in, for example, U.S. Patent
15 No. 5,837,458). The invention also includes degenerate nucleic acid variants of the disclosed NHP polynucleotide sequences.

Additionally contemplated are polynucleotides encoding a NHP ORF, or its functional equivalent, encoded by a
20 polynucleotide sequence that is about 99, 95, 90, or about 85 percent similar or identical to corresponding regions of the nucleotide sequences of the Sequence Listing (as measured by BLAST sequence comparison analysis using, for example, the GCG sequence analysis package using standard default settings).

25 The invention also includes nucleic acid molecules, preferably DNA molecules, that hybridize to, and are therefore the complements of, the described NHP nucleotide sequences. Such hybridization conditions may be highly stringent or less highly stringent, as described above. In instances where the
30 nucleic acid molecules are deoxyoligonucleotides ("DNA oligos"), such molecules are generally about 16 to about 100 bases long, or about 20 to about 80, or about 34 to about 45 bases long, or any variation or combination of sizes represented therein that incorporate a contiguous region of
35 sequence first disclosed in the Sequence Listing. Such oligonucleotides can be used in conjunction with the

polymerase chain reaction (PCR) to screen libraries, isolate clones, and prepare cloning and sequencing templates, etc.

Alternatively, such NHP oligonucleotides can be used as hybridization probes for screening libraries, and assessing
5 gene expression patterns (particularly using a micro array or high-throughput "chip" format). Additionally, a series of the described NHP oligonucleotide sequences, or the complements thereof, can be used to represent all or a portion of the described NHP sequences. An oligonucleotide or polynucleotide
10 sequence first disclosed in at least a portion of one or more of the sequences of SEQ ID NOS: 1-7 can be used as a hybridization probe in conjunction with a solid support matrix/substrate (resins, beads, membranes, plastics, polymers, metal or metallized substrates, crystalline or
15 polycrystalline substrates, etc.). Of particular note are spatially addressable arrays (*i.e.*, gene chips, microtiter plates, etc.) of oligonucleotides and polynucleotides, or corresponding oligopeptides and polypeptides, wherein at least one of the biopolymers present on the spatially addressable
20 array comprises an oligonucleotide or polynucleotide sequence first disclosed in at least one of the sequences of SEQ ID NOS: 1-7, or an amino acid sequence encoded thereby. Methods for attaching biopolymers to, or synthesizing biopolymers on, solid support matrices, and conducting binding studies thereon
25 are disclosed in, *inter alia*, U.S. Patent Nos. 5,700,637, 5,556,752, 5,744,305, 4,631,211, 5,445,934, 5,252,743, 4,713,326, 5,424,186, and 4,689,405 the disclosures of which are herein incorporated by reference in their entirety.

Addressable arrays comprising sequences first disclosed
30 in SEQ ID NOS:1-7 can be used to identify and characterize the temporal and tissue specific expression of a sequence. These addressable arrays incorporate oligonucleotide sequences of sufficient length to confer the required specificity, yet be within the limitations of the production technology. The
35 length of these probes is within a range of between about 8 to about 2000 nucleotides. Preferably the probes consist of 60

nucleotides and more preferably 25 nucleotides from the sequences first disclosed in SEQ ID NOS:1-7.

For example, a series of the described oligonucleotide sequences, or the complements thereof, can be used in chip
5 format to represent all or a portion of the described sequences. The oligonucleotides, typically between about 16 to about 40 (or any whole number within the stated range) nucleotides in length can partially overlap each other and/or the sequence may be represented using oligonucleotides that do
10 not overlap. Accordingly, the described polynucleotide sequences shall typically comprise at least about two or three distinct oligonucleotide sequences of at least about 8 nucleotides in length that are each first disclosed in the described Sequence Listing. Such oligonucleotide sequences
15 can begin at any nucleotide present within a sequence in the Sequence Listing and proceed in either a sense (5'-to-3') orientation vis-a-vis the described sequence or in an antisense orientation.

Microarray-based analysis allows the discovery of broad
20 patterns of genetic activity, providing new understanding of gene functions and generating novel and unexpected insight into transcriptional processes and biological mechanisms. The use of addressable arrays comprising sequences first disclosed in SEQ ID NOS:1-7 provides detailed information about
25 transcriptional changes involved in a specific pathway, potentially leading to the identification of novel components or gene functions that manifest themselves as novel phenotypes.

Probes consisting of sequences first disclosed in SEQ ID
30 NOS:1-7 can also be used in the identification, selection and validation of novel molecular targets for drug discovery. The use of these unique sequences permits the direct confirmation of drug targets and recognition of drug dependent changes in gene expression that are modulated through pathways distinct
35 from the drugs intended target. These unique sequences therefore also have utility in defining and monitoring both drug action and toxicity.

As an example of utility, the sequences first disclosed in SEQ ID NOS:1-7 can be utilized in microarrays or other assay formats, to screen collections of genetic material from patients who have a particular medical condition. These
5 investigations can also be carried out using the sequences first disclosed in SEQ ID NOS:1-7 *in silico* and by comparing previously collected genetic databases and the disclosed sequences using computer software known to those in the art.

Thus the sequences first disclosed in SEQ ID NOS:1-7 can
10 be used to identify mutations associated with a particular disease and also as a diagnostic or prognostic assay.

Although the presently described sequences have been specifically described using nucleotide sequence, it should be appreciated that each of the sequences can uniquely be
15 described using any of a wide variety of additional structural attributes, or combinations thereof. For example, a given sequence can be described by the net composition of the nucleotides present within a given region of the sequence in conjunction with the presence of one or more specific
20 oligonucleotide sequence(s) first disclosed in the SEQ ID NOS: 1-7. Alternatively, a restriction map specifying the relative positions of restriction endonuclease digestion sites, or various palindromic or other specific oligonucleotide sequences can be used to structurally describe a given
25 sequence. Such restriction maps, which are typically generated by widely available computer programs (e.g., the University of Wisconsin GCG sequence analysis package, SEQUENCHER 3.0, Gene Codes Corp., Ann Arbor, MI, etc.), can optionally be used in conjunction with one or more discrete
30 nucleotide sequence(s) present in the sequence that can be described by the relative position of the sequence relative to one or more additional sequence(s) or one or more restriction sites present in the disclosed sequence.

For oligonucleotide probes, highly stringent conditions
35 may refer, e.g., to washing in 6xSSC/0.05% sodium pyrophosphate at 37°C (for 14-base oligos), 48°C (for 17-base oligos), 55°C (for 20-base oligos), and 60°C (for 23-base

oligos). These nucleic acid molecules may encode or act as NHP sequence antisense molecules, useful, for example, in NHP gene regulation (for and/or as antisense primers in amplification reactions of NHP gene nucleic acid sequences).

- 5 With respect to NHP gene regulation, such techniques can be used to regulate biological functions. Further, such sequences may be used as part of ribozyme and/or triple helix sequences that are also useful for NHP gene regulation.

- Inhibitory antisense or double stranded oligonucleotides
10 can additionally comprise at least one modified base moiety which is selected from the group including but not limited to 5-fluorouracil, 5-bromouracil, 5-chlorouracil, 5-iodouracil, hypoxanthine, xantine, 4-acetylcytosine, 5-(carboxyhydroxymethyl) uracil, 5-carboxymethylaminomethyl-
15 2-thiouridine, 5-carboxymethylaminomethyluracil, dihydrouracil, beta-D-galactosylqueosine, inosine, N6-isopentenyladenine, 1-methylguanine, 1-methylinosine, 2,2-dimethylguanine, 2-methyladenine, 2-methylguanine, 3-methylcytosine, 5-methylcytosine, N6-adenine,
20 7-methylguanine, 5-methylaminomethyluracil, 5-methoxyaminomethyl-2-thiouracil, beta-D-mannosylqueosine, 5'-methoxycarboxymethyluracil, 5-methoxyuracil, 2-methylthio-N6-isopentenyladenine, uracil-5-oxyacetic acid (v), wybutoxosine, pseudouracil, queosine, 2-thiocytosine,
25 5-methyl-2-thiouracil, 2-thiouracil, 4-thiouracil, 5-methyluracil, uracil-5-oxyacetic acid methylester, uracil-5-oxyacetic acid (v), 5-methyl-2-thiouracil, 3-(3-amino-3-N-2-carboxypropyl) uracil, (acp3)w, and 2,6-diaminopurine.

- The antisense oligonucleotide can also comprise at least
30 one modified sugar moiety selected from the group including but not limited to arabinose, 2-fluoroarabinose, xylulose, and hexose.

- In yet another embodiment, the antisense oligonucleotide will comprise at least one modified phosphate backbone
35 selected from the group consisting of a phosphorothioate, a phosphorodithioate, a phosphoramidothioate, a phosphoramidate,

a phosphordiamidate, a methylphosphonate, an alkyl phosphotriester, and a formacetal or analog thereof.

In yet another embodiment, the antisense oligonucleotide is an α -anomeric oligonucleotide. An α -anomeric
5 oligonucleotide forms specific double-stranded hybrids with complementary RNA in which, contrary to the usual β -units, the strands run parallel to each other (Gautier et al., 1987, Nucl. Acids Res. 15:6625-6641). The oligonucleotide is a 2'-O-methylribonucleotide (Inoue et al., 1987, Nucl. Acids Res.
10 15:6131-6148), or a chimeric RNA-DNA analogue (Inoue et al., 1987, FEBS Lett. 215:327-330). Alternatively, double stranded RNA can be used to disrupt the expression and function of a targeted NHP.

Oligonucleotides of the invention can be synthesized by
15 standard methods known in the art, e.g. by use of an automated DNA synthesizer (such as are commercially available from Biosearch, Applied Biosystems, etc.). As examples, phosphorothioate oligonucleotides can be synthesized by the method of Stein et al. (1988, Nucl. Acids Res. 16:3209), and
20 methylphosphonate oligonucleotides can be prepared by use of controlled pore glass polymer supports (Sarin et al., 1988, Proc. Natl. Acad. Sci. U.S.A. 85:7448-7451), etc.

Low stringency conditions are well known to those of skill in the art, and will vary predictably depending on the
25 specific organisms from which the library and the labeled sequences are derived. For guidance regarding such conditions see, for example, Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual (and periodic updates thereof), Cold Springs Harbor Press, N.Y.; and Ausubel et al., 1989, Current
30 Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y.

Alternatively, suitably labeled NHP nucleotide probes can be used to screen a human genomic library using appropriately stringent conditions or by PCR. The identification and
35 characterization of human genomic clones is helpful for identifying polymorphisms (including, but not limited to, nucleotide repeats, microsatellite alleles, single nucleotide

polymorphisms, or coding single nucleotide polymorphisms), determining the genomic structure of a given locus/allele, and designing diagnostic tests. For example, sequences derived from regions adjacent to the intron/exon boundaries of the human gene can be used to design primers for use in amplification assays to detect mutations within the exons, introns, splice sites (e.g., splice acceptor and/or donor sites), etc., that can be used in diagnostics and pharmacogenomics.

Further, a NHP homolog can be isolated from nucleic acid from an organism of interest by performing PCR using two degenerate or "wobble" oligonucleotide primer pools designed on the basis of amino acid sequences within the NHP products disclosed herein. The template for the reaction may be total RNA, mRNA, and/or cDNA obtained by reverse transcription of mRNA prepared from human or non-human cell lines or tissue known or suspected to express an allele of a NHP gene.

The PCR product can be subcloned and sequenced to ensure that the amplified sequences represent the sequence of the desired NHP. The PCR fragment can then be used to isolate a full length cDNA clone by a variety of methods. For example, the amplified fragment can be labeled and used to screen a cDNA library, such as a bacteriophage cDNA library. Alternatively, the labeled fragment can be used to isolate genomic clones via the screening of a genomic library.

PCR technology can also be used to isolate full length cDNA sequences. For example, RNA can be isolated, following standard procedures, from an appropriate cellular or tissue source (i.e., one known, or suspected, to express a NHP gene, such as, for example, testis tissue). A reverse transcription (RT) reaction can be performed on the RNA using an oligonucleotide primer specific for the most 5' end of the amplified fragment for the priming of first strand synthesis. The resulting RNA/DNA hybrid may then be "tailed" using a standard terminal transferase reaction, the hybrid may be digested with RNase H, and second strand synthesis may then be primed with a complementary primer. Thus, cDNA sequences

upstream of the amplified fragment can be isolated. For a review of cloning strategies that can be used, see e.g., Sambrook et al., 1989, *supra*.

5 A cDNA encoding a mutant NHP gene can be isolated, for example, by using PCR. In this case, the first cDNA strand may be synthesized by hybridizing an oligo-dT oligonucleotide to mRNA isolated from tissue known or suspected to be expressed in an individual putatively carrying a mutant NHP allele, and by extending the new strand with reverse
10 transcriptase. The second strand of the cDNA is then synthesized using an oligonucleotide that hybridizes specifically to the 5' end of the normal gene. Using these two primers, the product is then amplified via PCR, optionally cloned into a suitable vector, and subjected to DNA sequence
15 analysis through methods well known to those of skill in the art. By comparing the DNA sequence of the mutant NHP allele to that of a corresponding normal NHP allele, the mutation(s) responsible for the loss or alteration of function of the mutant NHP gene product can be ascertained.

20 Alternatively, a genomic library can be constructed using DNA obtained from an individual suspected of or known to carry a mutant NHP allele (e.g., a person manifesting a NHP-associated phenotype such as, for example, obesity, high blood pressure, connective tissue disorders, infertility, etc.), or
25 a cDNA library can be constructed using RNA from a tissue known, or suspected, to express a mutant NHP allele. A normal NHP gene, or any suitable fragment thereof, can then be labeled and used as a probe to identify the corresponding mutant NHP allele in such libraries. Clones containing mutant
30 NHP gene sequences can then be purified and subjected to sequence analysis according to methods well known to those skilled in the art.

Additionally, an expression library can be constructed utilizing cDNA synthesized from, for example, RNA isolated
35 from a tissue known, or suspected, to express a mutant NHP allele in an individual suspected of or known to carry such a mutant allele. In this manner, gene products made by the

putatively mutant tissue can be expressed and screened using standard antibody screening techniques in conjunction with antibodies raised against normal NHP product, as described below. (For screening techniques, see, for example, Harlow,
5 E. and Lane, eds., 1988, "Antibodies: A Laboratory Manual", Cold Spring Harbor Press, Cold Spring Harbor.)

Additionally, screening can be accomplished by screening with labeled NHP fusion proteins, such as, for example, alkaline phosphatase-NHP or NHP-alkaline phosphatase fusion proteins.
10 In cases where a NHP mutation results in an expressed gene product with altered function (e.g., as a result of a missense or a frameshift mutation), polyclonal antibodies to NHP are likely to cross-react with a corresponding mutant NHP gene product. Library clones detected via their reaction with such
15 labeled antibodies can be purified and subjected to sequence analysis according to methods well known in the art.

The invention also encompasses (a) DNA vectors that contain any of the foregoing NHP coding sequences and/or their complements (i.e., antisense); (b) DNA expression vectors that
20 contain any of the foregoing NHP coding sequences operatively associated with a regulatory element that directs the expression of the coding sequences (for example, baculo virus as described in U.S. Patent No. 5,869,336 herein incorporated by reference); (c) genetically engineered host cells that
25 contain any of the foregoing NHP coding sequences operatively associated with a regulatory element that directs the expression of the coding sequences in the host cell; and (d) genetically engineered host cells that express an endogenous NHP sequence under the control of an exogenously introduced
30 regulatory element (i.e., gene activation). As used herein, regulatory elements include, but are not limited to, inducible and non-inducible promoters, enhancers, operators and other elements known to those skilled in the art that drive and regulate expression. Such regulatory elements include but are
35 not limited to the human cytomegalovirus (hCMV) immediate early gene, regulatable, viral elements (particularly retroviral LTR promoters), the early or late promoters of SV40

adenovirus, the *lac* system, the *trp* system, the TAC system, the TRC system, the major operator and promoter regions of phage lambda, the control regions of fd coat protein, the promoter for 3-phosphoglycerate kinase (PGK), the promoters of
5 acid phosphatase, and the promoters of the yeast α -mating factors.

The present invention also encompasses antibodies and anti-idiotypic antibodies (including Fab fragments), antagonists and agonists of a NHP, as well as compounds or
10 nucleotide constructs that inhibit expression of a NHP gene (transcription factor inhibitors, antisense and ribozyme molecules, or gene or regulatory sequence replacement constructs), or promote the expression of a NHP (e.g.,
expression constructs in which NHP coding sequences are
15 operatively associated with expression control elements such as promoters, promoter/enhancers, etc.).

The NHPs or NHP peptides, NHP fusion proteins, NHP nucleotide sequences, antibodies, antagonists and agonists can be useful for the detection of mutant NHPs or inappropriately
20 expressed NHPs for the diagnosis of disease. The NHP proteins or peptides, NHP fusion proteins, NHP nucleotide sequences, host cell expression systems, antibodies, antagonists, agonists and genetically engineered cells and animals can be used for screening for drugs (or high throughput screening of
25 combinatorial libraries) effective in the treatment of the symptomatic or phenotypic manifestations of perturbing the normal function of a NHP in the body. The use of engineered host cells and/or animals may offer an advantage in that such systems allow not only for the identification of compounds
30 that bind to the endogenous receptor for a NHP, but can also identify compounds that trigger NHP-mediated activities or pathways.

Finally, the NHP products can be used as therapeutics. For example, soluble derivatives such as NHP peptides/domains
35 corresponding to NHP, NHP fusion protein products (especially NHP-Ig fusion proteins, i.e., fusions of a NHP, or a domain of a NHP, to an IgFc), NHP antibodies and anti-idiotypic

antibodies (including Fab fragments), antagonists or agonists (including compounds that modulate or act on downstream targets in a NHP-mediated pathway) can be used to directly treat diseases or disorders. For instance, the administration of an effective amount of soluble NHP, or a NHP-IgFc fusion protein or an anti-idiotypic antibody (or its Fab) that mimics the NHP could activate or effectively antagonize the endogenous NHP receptor. Nucleotide constructs encoding such NHP products can be used to genetically engineer host cells to express such products *in vivo*; these genetically engineered cells function as "bioreactors" in the body delivering a continuous supply of a NHP, a NHP peptide, or a NHP fusion protein to the body. Nucleotide constructs encoding functional NHP, mutant NHPs, as well as antisense and ribozyme molecules can also be used in "gene therapy" approaches for the modulation of NHP expression. Thus, the invention also encompasses pharmaceutical formulations and methods for treating biological disorders.

Various aspects of the invention are described in greater detail in the subsections below.

5.1 THE NHP SEQUENCES

The cDNA sequences (SEQ ID NO: 1, 3, and 5) and the corresponding deduced amino acid sequences of the described NHP are presented in the Sequence Listing. SEQ ID NO:7 describes a NHP ORF as well as flanking regions. The NHP nucleotides were obtained from human cDNA libraries using probes and/or primers generated from human gene trapped sequence tags. Expression analysis has provided evidence that the described NHP can be expressed a variety of human cells as well as gene trapped human cells. In addition, the described NHP sequences can contain a variety of polymorphisms such as at nucleotide 68 of SEQ ID NO:1 and nucleotide 56 of SEQ ID NO:3 which both can be a G or an A that can give rise to corresponding arg or gln at amino acid position 23 of SEQ ID NO:2, or residue 19 of SEQ ID NO:4. The described NHP sequences can also contain A-G polymorphisms at nucleotide 82

of SEQ ID NO:1 and nucleotide 70 of SEQ ID NO:3 which can give rise to a corresponding ala or thr at amino acid position 28 of SEQ ID NO:2, or residue 24 of SEQ ID NO:4. The described NHPs share similarity with trypsin-like proteases, plasminogen
5 activators, and human plasma kallikrein precursor.

5.2 NHPs AND NHP POLYPEPTIDES

NHPs, polypeptides, peptide fragments, mutated, truncated, or deleted forms of the NHPs, and/or NHP fusion
10 proteins can be prepared for a variety of uses. These uses include, but are not limited to, the generation of antibodies, as reagents in diagnostic assays, for the identification of other cellular gene products related to a NHP, as reagents in assays for screening for compounds that can be as
15 pharmaceutical reagents useful in the therapeutic treatment of mental, biological, or medical disorders and disease.

The Sequence Listing discloses the amino acid sequence encoded by the described NHP polynucleotides. The NHPs display initiator methionines in DNA sequence contexts
20 consistent with a translation initiation site, and display a consensus signal sequence.

The NHP amino acid sequences of the invention include the amino acid sequences presented in the Sequence Listing as well as analogues and derivatives thereof, as well as any
25 oligopeptide sequence of at least about 10-40, generally about 12-35, or about 16-30 amino acids in length first disclosed in the Sequence Listing. Further, corresponding NHP homologues from other species are encompassed by the invention. In fact, any NHP encoded by the NHP nucleotide sequences described
30 above are within the scope of the invention, as are any novel polynucleotide sequences encoding all or any novel portion of an amino acid sequence presented in the Sequence Listing. The degenerate nature of the genetic code is well known, and, accordingly, each amino acid presented in the Sequence
35 Listing, is generically representative of the well known nucleic acid "triplet" codon, or in many cases codons, that can encode the amino acid. As such, as contemplated herein,

the amino acid sequences presented in the Sequence Listing, when taken together with the genetic code (see, for example, Table 4-1 at page 109 of "Molecular Cell Biology", 1986, J. Darnell et al. eds., Scientific American Books, New York, NY, 5 herein incorporated by reference) are generically representative of all the various permutations and combinations of nucleic acid sequences that can encode such amino acid sequences.

The invention also encompasses proteins that are 10 functionally equivalent to the NHPs encoded by the presently described nucleotide sequences as judged by any of a number of criteria, including, but not limited to, the ability to bind and cleave a substrate of a NHP, or the ability to effect an identical or complementary downstream pathway, or a change in 15 cellular metabolism (e.g., proteolytic activity, ion flux, tyrosine phosphorylation, etc.). Such functionally equivalent NHP proteins include, but are not limited to, additions or substitutions of amino acid residues within the amino acid sequence encoded by the NHP nucleotide sequences described 20 above, but which result in a silent change, thus producing a functionally equivalent gene product. Amino acid substitutions can be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity, and/or the amphipathic nature of the residues involved. For 25 example, nonpolar (hydrophobic) amino acids include alanine, leucine, isoleucine, valine, proline, phenylalanine, tryptophan, and methionine; polar neutral amino acids include glycine, serine, threonine, cysteine, tyrosine, asparagine, and glutamine; positively charged (basic) amino acids include 30 arginine, lysine, and histidine; and negatively charged (acidic) amino acids include aspartic acid and glutamic acid.

A variety of host-expression vector systems can be used to express the NHP nucleotide sequences of the invention. Where, as in the present instance, the NHP products or NHP 35 polypeptides are thought to be soluble or secreted molecules, the peptide or polypeptide can be recovered from the culture media. Such expression systems also encompass engineered host

cells that express a NHP, or a functional equivalent, *in situ*. Purification or enrichment of NHP from such expression systems can be accomplished using appropriate detergents and lipid micelles and methods well known to those skilled in the art.

- 5 However, such engineered host cells themselves may be used in situations where it is important not only to retain the structural and functional characteristics of the NHP, but to assess biological activity, *e.g.*, in drug screening assays.

The expression systems that may be used for purposes of
10 the invention include but are not limited to microorganisms such as bacteria (*e.g.*, *E. coli*, *B. subtilis*) transformed with recombinant bacteriophage DNA, plasmid DNA or cosmid DNA expression vectors containing NHP nucleotide sequences; yeast (*e.g.*, *Saccharomyces*, *Pichia*) transformed with recombinant
15 yeast expression vectors containing NHP encoding nucleotide sequences; insect cell systems infected with recombinant virus expression vectors (*e.g.*, baculovirus) containing NHP sequences; plant cell systems infected with recombinant virus expression vectors (*e.g.*, cauliflower mosaic virus, CaMV; tobacco mosaic virus, TMV) or transformed with recombinant
20 plasmid expression vectors (*e.g.*, Ti plasmid) containing NHP nucleotide sequences; or mammalian cell systems (*e.g.*, COS, CHO, BHK, 293, 3T3) harboring recombinant expression constructs containing promoters derived from the genome of
25 mammalian cells (*e.g.*, metallothionein promoter) or from mammalian viruses (*e.g.*, the adenovirus late promoter; the vaccinia virus 7.5K promoter).

In bacterial systems, a number of expression vectors may be advantageously selected depending upon the use intended for
30 the NHP product being expressed. For example, when a large quantity of such a protein is to be produced for the generation of pharmaceutical compositions of or containing NHP, or for raising antibodies to a NHP, vectors that direct the expression of high levels of fusion protein products that
35 are readily purified may be desirable. Such vectors include, but are not limited, to the *E. coli* expression vector pUR278 (Ruther *et al.*, 1983, EMBO J. 2:1791), in which a NHP coding

sequence may be ligated individually into the vector in frame with the *lacZ* coding region so that a fusion protein is produced; pIN vectors (Inouye & Inouye, 1985, Nucleic Acids Res. 13:3101-3109; Van Heeke & Schuster, 1989, J. Biol. Chem. 264:5503-5509); and the like. pGEX vectors (Pharmacia or American Type Culture Collection) can also be used to express foreign polypeptides as fusion proteins with glutathione S-transferase (GST). In general, such fusion proteins are soluble and can easily be purified from lysed cells by adsorption to glutathione-agarose beads followed by elution in the presence of free glutathione. The PGEX vectors are designed to include thrombin or factor Xa protease cleavage sites so that the cloned target gene product can be released from the GST moiety.

In an insect system, *Autographa californica* nuclear polyhidrosis virus (AcNPV) is used as a vector to express foreign genes. The virus grows in *Spodoptera frugiperda* cells. A NHP coding sequence can be cloned individually into non-essential regions (for example the polyhedrin gene) of the virus and placed under control of an AcNPV promoter (for example the polyhedrin promoter). Successful insertion of NHP coding sequence will result in inactivation of the polyhedrin gene and production of non-occluded recombinant virus (i.e., virus lacking the proteinaceous coat coded for by the polyhedrin gene). These recombinant viruses are then used to infect *Spodoptera frugiperda* cells in which the inserted sequence is expressed (e.g., see Smith et al., 1983, J. Virol. 46: 584; Smith, U.S. Patent No. 4,215,051).

In mammalian host cells, a number of viral-based expression systems may be utilized. In cases where an adenovirus is used as an expression vector, the NHP nucleotide sequence of interest may be ligated to an adenovirus transcription/translation control complex, e.g., the late promoter and tripartite leader sequence. This chimeric sequence may then be inserted in the adenovirus genome by in vitro or in vivo recombination. Insertion in a non-essential region of the viral genome (e.g., region E1 or E3) will result

in a recombinant virus that is viable and capable of expressing a NHP product in infected hosts (e.g., See Logan & Shenk, 1984, Proc. Natl. Acad. Sci. USA 81:3655-3659). Specific initiation signals may also be required for efficient translation of inserted NHP nucleotide sequences. These signals include the ATG initiation codon and adjacent sequences. In cases where an entire NHP gene or cDNA, including its own initiation codon and adjacent sequences, is inserted into the appropriate expression vector, no additional translational control signals may be needed. However, in cases where only a portion of a NHP coding sequence is inserted, exogenous translational control signals, including, perhaps, the ATG initiation codon, must be provided. Furthermore, the initiation codon must be in phase with the reading frame of the desired coding sequence to ensure translation of the entire insert. These exogenous translational control signals and initiation codons can be of a variety of origins, both natural and synthetic. The efficiency of expression may be enhanced by the inclusion of appropriate transcription enhancer elements, transcription terminators, etc. (See Bittner et al., 1987, Methods in Enzymol. 153:516-544).

In addition, a host cell strain may be chosen that modulates the expression of the inserted sequences, or modifies and processes the gene product in the specific fashion desired. Such modifications (e.g., glycosylation) and processing (e.g., cleavage) of protein products may be important for the function of the protein. Different host cells have characteristic and specific mechanisms for the post-translational processing and modification of proteins and gene products. Appropriate cell lines or host systems can be chosen to ensure the correct modification and processing of the foreign protein expressed. To this end, eukaryotic host cells which possess the cellular machinery for proper processing of the primary transcript, glycosylation, and phosphorylation of the gene product may be used. Such mammalian host cells include, but are not limited to, CHO,

VERO, BHK, HeLa, COS, MDCK, 293, 3T3, WI38, and in particular, human cell lines.

For long-term, high-yield production of recombinant proteins, stable expression is preferred. For example, cell lines which stably express the NHP sequences described above can be engineered. Rather than using expression vectors which contain viral origins of replication, host cells can be transformed with DNA controlled by appropriate expression control elements (e.g., promoter, enhancer sequences, transcription terminators, polyadenylation sites, etc.), and a selectable marker. Following the introduction of the foreign DNA, engineered cells may be allowed to grow for 1-2 days in an enriched media, and then are switched to a selective media. The selectable marker in the recombinant plasmid confers resistance to the selection and allows cells to stably integrate the plasmid into their chromosomes and grow to form foci which in turn can be cloned and expanded into cell lines. This method may advantageously be used to engineer cell lines which express the NHP product. Such engineered cell lines may be particularly useful in screening and evaluation of compounds that affect the endogenous activity of the NHP product.

A number of selection systems may be used, including but not limited to the herpes simplex virus thymidine kinase (Wigler, et al., 1977, Cell 11:223), hypoxanthine-guanine phosphoribosyltransferase (Szybalska & Szybalski, 1962, Proc. Natl. Acad. Sci. USA 48:2026), and adenine phosphoribosyltransferase (Lowy, et al., 1980, Cell 22:817) genes can be employed in tk⁻, hgp^rt⁻ or ap^rt⁻ cells, respectively. Also, antimetabolite resistance can be used as the basis of selection for the following genes: dhfr, which confers resistance to methotrexate (Wigler, et al., 1980, Natl. Acad. Sci. USA 77:3567; O'Hare, et al., 1981, Proc. Natl. Acad. Sci. USA 78:1527); gpt, which confers resistance to mycophenolic acid (Mulligan & Berg, 1981, Proc. Natl. Acad. Sci. USA 78:2072); neo, which confers resistance to the aminoglycoside G-418 (Colberre-Garapin, et al., 1981, J. Mol.

Biol. 150:1); and hygromycin, which confers resistance to hygromycin (Santerre, et al., 1984, Gene 30:147).

Alternatively, any fusion protein can be readily purified by utilizing an antibody specific for the fusion protein being expressed. For example, a system described by Janknecht et al. allows for the ready purification of non-denatured fusion proteins expressed in human cell lines (Janknecht, et al., 1991, Proc. Natl. Acad. Sci. USA 88:8972-8976). In this system, the sequence of interest is subcloned into a vaccinia recombination plasmid such that the gene's open reading frame is translationally fused to an amino-terminal tag consisting of six histidine residues. Extracts from cells infected with recombinant vaccinia virus are loaded onto Ni²⁺-nitriloacetic acid-agarose columns and histidine-tagged proteins are selectively eluted with imidazole-containing buffers. Also encompassed by the present invention are novel protein constructs engineered in such a way that they facilitate transport of the NHP to the target site, to the desired organ, across the cell membrane and/or to the nucleus where the NHP can exert its function activity. This goal may be achieved by coupling of the NHP to a cytokine or other ligand that would direct the NHP to the target organ and facilitate receptor mediated transport across the membrane into the cytosol. Conjugation of NHPs to antibody molecules or their Fab fragments could be used to target cells bearing a particular epitope. Attaching the appropriate signal sequence to the NHP would also transport the NHP to the desired location within the cell. Alternatively targeting of NHP or its nucleic acid sequence might be achieved using liposome or lipid complex based delivery systems. Such technologies are described in Liposomes: A Practical Approach, New RRC ed., Oxford University Press, New York and in U.S. Patents Nos. 4,594,595, 5,459,127, 5,948,767 and 6,110,490 and their respective disclosures which are herein incorporated by reference in their entirety.

5.3 ANTIBODIES TO NHP PRODUCTS

Antibodies that specifically recognize one or more epitopes of a NHP, or epitopes of conserved variants of a NHP, or peptide fragments of a NHP are also encompassed by the invention. Such antibodies include but are not limited to polyclonal antibodies, monoclonal antibodies (mAbs), humanized or chimeric antibodies, single chain antibodies, Fab fragments, F(ab')₂ fragments, fragments produced by a Fab expression library, anti-idiotypic (anti-Id) antibodies, and epitope-binding fragments of any of the above.

The antibodies of the invention may be used, for example, in the detection of NHP in a biological sample and may, therefore, be utilized as part of a diagnostic or prognostic technique whereby patients may be tested for abnormal amounts of NHP. Such antibodies may also be utilized in conjunction with, for example, compound screening schemes for the evaluation of the effect of test compounds on expression and/or activity of a NHP gene product. Additionally, such antibodies can be used in conjunction gene therapy to, for example, evaluate the normal and/or engineered NHP-expressing cells prior to their introduction into the patient. Such antibodies may additionally be used as a method for the inhibition of abnormal NHP activity. Thus, such antibodies may, therefore, be utilized as part of treatment methods.

For the production of antibodies, various host animals may be immunized by injection with the NHP, an NHP peptide (e.g., one corresponding to a functional domain of an NHP), truncated NHP polypeptides (NHP in which one or more domains have been deleted), functional equivalents of the NHP or mutated variant of the NHP. Such host animals may include but are not limited to pigs, rabbits, mice, goats, and rats, to name but a few. Various adjuvants may be used to increase the immunological response, depending on the host species, including but not limited to Freund's adjuvant (complete and incomplete), mineral salts such as aluminum hydroxide or aluminum phosphate, surface active substances such as

lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, and potentially useful human adjuvants such as BCG (bacille Calmette-Guerin) and *Corynebacterium parvum*.

Alternatively, the immune response could be enhanced by

5 combination and or coupling with molecules such as keyhole limpet hemocyanin, tetanus toxoid, diphtheria toxoid, ovalbumin, cholera toxin or fragments thereof. Polyclonal antibodies are heterogeneous populations of antibody molecules derived from the sera of the immunized animals.

10 Monoclonal antibodies, which are homogeneous populations of antibodies to a particular antigen, can be obtained by any technique which provides for the production of antibody molecules by continuous cell lines in culture. These include, but are not limited to, the hybridoma technique of Kohler and
15 Milstein, (1975, Nature 256:495-497; and U.S. Patent No. 4,376,110), the human B-cell hybridoma technique (Kosbor et al., 1983, Immunology Today 4:72; Cole et al., 1983, Proc. Natl. Acad. Sci. USA 80:2026-2030), and the EBV-hybridoma technique (Cole et al., 1985, Monoclonal Antibodies And Cancer
20 Therapy, Alan R. Liss, Inc., pp. 77-96). Such antibodies may be of any immunoglobulin class including IgG, IgM, IgE, IgA, IgD and any subclass thereof. The hybridoma producing the mAb of this invention may be cultivated in vitro or in vivo. Production of high titers of mAbs in vivo makes this the
25 presently preferred method of production.

In addition, techniques developed for the production of "chimeric antibodies" (Morrison et al., 1984, Proc. Natl. Acad. Sci., 81:6851-6855; Neuberger et al., 1984, Nature, 312:604-608; Takeda et al., 1985, Nature, 314:452-454) by
30 splicing the genes from a mouse antibody molecule of appropriate antigen specificity together with genes from a human antibody molecule of appropriate biological activity can be used. A chimeric antibody is a molecule in which different portions are derived from different animal species, such as
35 those having a variable region derived from a murine mAb and a human immunoglobulin constant region. Such technologies are described in U.S. Patents Nos. 6,075,181 and 5,877,397 and

their respective disclosures which are herein incorporated by reference in their entirety.

Alternatively, techniques described for the production of single chain antibodies (U.S. Patent 4,946,778; Bird, 1988, Science 242:423-426; Huston et al., 1988, Proc. Natl. Acad. Sci. USA 85:5879-5883; and Ward et al., 1989, Nature 334:544-546) can be adapted to produce single chain antibodies against NHP gene products. Single chain antibodies are formed by linking the heavy and light chain fragments of the Fv region via an amino acid bridge, resulting in a single chain polypeptide.

Antibody fragments which recognize specific epitopes may be generated by known techniques. For example, such fragments include, but are not limited to: the F(ab')₂ fragments which can be produced by pepsin digestion of the antibody molecule and the Fab fragments which can be generated by reducing the disulfide bridges of the F(ab')₂ fragments. Alternatively, Fab expression libraries may be constructed (Huse et al., 1989, Science, 246:1275-1281) to allow rapid and easy identification of monoclonal Fab fragments with the desired specificity.

Antibodies to a NHP can, in turn, be utilized to generate anti-idiotypic antibodies that "mimic" a given NHP, using techniques well known to those skilled in the art. (See, e.g., Greenspan & Bona, 1993, FASEB J 7(5):437-444; and Nissinoff, 1991, J. Immunol. 147(8):2429-2438). For example antibodies which bind to a NHP domain and competitively inhibit the binding of NHP to its cognate receptor can be used to generate anti-idiotypes that "mimic" the NHP and, therefore, bind and activate or neutralize a receptor. Such anti-idiotypic antibodies or Fab fragments of such anti-idiotypes can be used in therapeutic regimens involving a NHP signaling pathway.

The present invention is not to be limited in scope by the specific embodiments described herein, which are intended as single illustrations of individual aspects of the invention, and functionally equivalent methods and components are within the scope of the invention. Indeed, various

modifications of the invention, in addition to those shown and described herein will become apparent to those skilled in the art from the foregoing description. Such modifications are intended to fall within the scope of the appended claims. All
5 cited publications, patents, and patent applications are herein incorporated by reference in their entirety.

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising at least 24 contiguous bases of nucleotide sequence first
5 disclosed in the NHP polynucleotide described in SEQ ID NO: 1.

2. An isolated nucleic acid molecule comprising a nucleotide sequence that:

- 10 (a) encodes the amino acid sequence shown in SEQ ID NO: 2; and
(b) hybridizes under stringent conditions to the nucleotide sequence of SEQ ID NO: 1 or the complement thereof.

15 3. An isolated nucleic acid molecule encoding the amino acid sequence described in SEQ ID NO: 2.

SEQUENCE LISTING

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 Turner, C. Alexander Jr.
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 Friedrich, Glenn
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/33738

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/11

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EMBL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL 'Online! EBI; Acc. No: AC012228 , 22 October 1999 (1999-10-22) BIRREN B., LINTON L., NUSBAUM C., LANDER E.: "Homo sapiens chromosome 11 clone RP11-439A13 map 11, LOW-PASS SEQUENCE SAMPLING" XP002163709 abstract -----	1-3

☐ Further documents are listed in the continuation of box C.☐ Patent family members are listed in annex.

* Special categories of cited documents:

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- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

23 March 2001

Date of mailing of the international search report

05/04/2001

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Authorized officer

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